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V III

MAYOR'S ANNUAL MESSAGE

AND THE

FOURTEENTH ANNUAL REPORT

OF THE

DEPARTMENT OF PUBLIC WORKS

TO THE

CITY COUNCIL OF THE CITY OF CHICAGO,

FOR THE

Fiscal Year Ending December 31,

1889.

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MESSAGE

OF

MAYOR CREGIER

1890

MESSAGE OF MAYOR CREGIER.

CITY OF CHICAGO, MAYOR'S OFFICE,
April 14, 1890.

To the Honorable the City Council:

GENTLEMEN:—The city charter requires that the Mayor shall annually present to the City Council "information relative to the affairs of the city, and shall recommend for its consideration such measures as he may deem expedient." In obedience to these requirements, I have the honor to present herewith a general summary of transactions of the past municipal year and such other information as the occasion seems to warrant.

The wonderful growth and material prosperity must be gratifying to all, and it affords me much pleasure to be able to refer, not only to these prime factors of substantial development, but to those equally essential elements, peace and good order, that uniformly characterize our community as a whole. There is no more cosmopolitan city in the world than Chicago. Few cities cover so large a territory, and none with equal population has numerically a smaller police force, yet the infractions of law have not been numerous, nor, with one or two exceptions, has crime of a startling character been committed in our midst. These and other facts demonstrate that the citizens of Chicago are a patriotic, law-abiding people, who, as a body, are proud of their country's institutions and deeply interested in the moral and material welfare of our city.

ANNEXATION.

The year 1889 will ever be memorable in the history of Chicago, due mainly to the accession of an extensive area of territory to the original municipal limits, and a consequent increase of population. On the 28th of June, 1889, the city embraced about forty-four square miles of territory, containing about 850,000 people; on the day following, viz: June 29, by vote of the people, the city of Lake View and the towns of Hyde Park, Lake, Jefferson and Cicero, aggregating 128.24 miles of territory and about 220,000 people, were annexed to, and became a part of Chicago, thus constituting one great metropolis, extending twenty-four miles from north to south, and from 4½ to 10½ miles from east to west; embracing within these limits more than a million people. (The validity of the proceedings was confirmed by the Supreme Court of the State, October 29, 1889.) By this extraordinary consolidation, six independent municipal corporations, each having a legislative and executive department of government, each controlled and operating under more or less different systems and methods of conducting public affairs, were at once merged into one municipality under the authority and control of one city government.

I am pleased to say, the formality of transferring and receiving the public property of the several annexed territories, was characterized by kindly feeling, promptitude and mutual co-operation, by and between our former neighbors and the city authorities. The only exception to this was the refusal, during several months, of the treasurers of the city of Lake View and town of Hyde Park, to pay over the balances in their respective treasuries, or to pay outstanding indebtedness, which in the case of Hyde Park was largely provided for by the authorized issuance of bonds to the amount of $248,000, which bonds were canceled after annexation. In the case of Lake View, the cost of constructing the new water tunnel was provided for by the issuance of bonds to the amount of $50,000. These were not issued, consequently the present city was deprived of a total of $298,000 wherewith to meet current liabilities; but, notwithstanding this fact, the administration continued to meet every obligation by prompt payment.

I need hardly say, that the large addition to our municipal limits, the consequent increase in population and the disproportionate financial resources available have imposed correspondingly increased responsibilities and labors upon every branch and department of city administration and supervision, and, although portions of the city are remote from the City Hall, and the interests demanding official attention are numerous, varied and important, nothing has occurred which has been permitted to interrupt harmonious and careful administration of the city's business, or the successful execution of public work.

FINANCIAL.

The bonded debt of the city January 1, 1889, was $12,561,500, subdivided as follows:

Municipal bonds, $3,376,000; Sewer bonds, $2,622,500; River Improvement bonds, $2,608,000; Water bonds, $3,955,000. The bonds mature at different periods until 1908, and bear interest at the rate of from 3½ per cent. to 7 per cent., as follows:

$225,000 at 3½ per cent.; $333,000 at 3.65 per cent.; $2,328,000 at 4 per cent.; $498,500 at 4½ per cent.; $318,000 at 6 per cent., and $8,868,000 at 7 per cent.

Of the Water bonds, $225,000 bearing 7 per cent. interest, matured in July last, and were re-issued under the authority of the City Council. They were sold to the First National Bank of this city at a premium of 2 78/100 cents, and bear interest at the rate of 3½ per cent. per annum—the highest premium and lowest interest at which any of our city bonds have ever been sold, thus saving in the matter of interest, $7,875 per annum. Bonds to the amount of $943,500 will fall due July first next. This Honorable Body has already authorized the renewal of these bonds and the re-issuance of new bonds of like amount, which I confidently expect will be negotiated at 3½ per cent. interest, or less, thus saving at least $32,690 per annum. The bonded debt of the city January 1, 1889, has been increased by the bonded indebtedness of the lately annexed districts, as follows:

Hyde Park, $434,000; Lake, $411,400; Lake View, $200,000. The bonds bearing interest at the rate of from 4 per cent. to 7 per cent., making the present city's bonded debt $13,606,900; this, however, is exclusive of the indebtedness of the respective school districts, which has not yet been fully adjusted.

The amount in city treasury January 1, 1889, was		$ 2,294,926 15
Receipts from all sources to January 1, 1890		18,680,650 31
Total resources for the year		$20,975,576 46
Disbursements for same period were	$19,225,962 36	
Leaving balance in treasury of	1,749,614 10	
		$20,975,576 46

There are several financial matters of long standing which have been adjusted during the year, and several of like character yet pending. The account against the county authorities, extending back to 1871, amounting to $54,262.06, has been amicably adjusted and settled; a portion of the amount realized was for the city's claim in the old Reform school property located in Hyde Park.

EIGHTY ACRE TRACT.

In 1836, $1,500 of the school funds were loaned on eighty acres of land near what is now Grand Crossing, in Hyde Park. Default having been made, the mortgage was foreclosed in 1844, and in 1846 the eighty acres lawfully reverted to the school authorities. Since then other parties claim title. The matter was presented to the Board of Education with a proposition to give the city thirty of the eighty acres. This offer was subsequently increased to forty acres. In consultation with the Corporation Counsel and Finance Committee of the Council the proposition was declined, the city taking the position that the school fund owned the entire eighty acres or none. The rights of all parties will be adjudicated by the courts.

GAS.

After protracted negotiations between the President of the gas companies and the city authorities as to the price of gas for street lamps, an agreement was made by which the city secured a material reduction in the price, not only for municipal purposes within the old city limits, but also for the public in general of the annexed districts.

The price of gas had ranged from $1.25 to $2 per thousand feet; the new arrangement provides for a uniform rate, viz.: $1.25 per thousand cubic feet in all portions of the city. The reduction from former prices insures a saving of $74,700 in the former city, $6,000 in Lake, $4,800 in Hyde Park, and $4,500 in Lake View; a total annual saving to the people of $90,000.

LA SALLE STREET TUNNEL.

The sum of $57,833.33 has accrued as rental and is now due to the city by the North Chicago Street Railroad Company under the terms and conditions of the ordinance granting that company the privilege of using the La Salle streeet tunnel for car service. The payment of the rental provided for by the ordinance seems to have been acknowledged and partly met by the deposit of a check for $15,000, just prior to the municipal election in April, 1889. A few days subsequently, however, this check was returned. There is nothing of record or otherwise to justify this latter transaction, consequently the present Comptroller has presented to the company a claim for the whole amount due, payment of which is declined and a counter claim against the city is presented for $69,424.39, which appears to be wholly unwarranted.

The city's claim against the company has been placed in the hands of the Law Department for settlement.

VIADUCT DAMAGES.

During the years 1887-8 there seems to have been no provision made, nor steps taken to ascertain or arrange in advance for the damages liable to arise in making certain extensive improvements. The result is, that claims have been filed and suits instituted for damage to property, etc., on account of construction of the bridge and viaduct on Jackson street, amounting to $558,240; for the Ashland avenue viaduct, $287,013; Twelfth street viaduct, $191,431; Western avenue viaduct, $151,803; Dearborn street bridge, $72,176; Eighteenth street viaduct, $70,000; Halsted street viaduct, $62,000; Sangamon street viaduct, $25,000; Center avenue viaduct, $23,000; Milwaukee avenue viaduct, $10,000; Harrison street viaduct, $5,000, and Polk street viaduct, $4,000, making a grand total of $1,459,663.

INTEREST ON PUBLIC FUNDS.

The question of interest on the public funds is one of the most important with which this Council has had to deal during the past year, and is a subject demanding just and proper legislation in order that the question may be wisely and definitely fixed. I need not repeat what has been so recently presented to you in advocacy of reform in this matter, beyond a reiteration of my former expressions on the subject, which I believe also reflect the sentiment of our citizens generally, viz.: That the present system is wrong in principle, inequitable in practice, and an injustice to the taxpayer. The public money, principal and interest, unquestionably belongs to the people.

TAXABLE RESOURCES.

So much has been said and written on the limited resources of our city under constitutional limitations, to meet the public demands, that to dwell upon the subject here would be to repeat what is well known and understood; nevertheless, the question can not be lost sight of. It affords ample food for thought and should engross the careful attention and consideration of every citizen and every official in order that some plan may be devised through wise and careful legislation, by which this great and growing city may secure sufficient funds to be expended in making public improvements of such a permanent and substantial character as will answer the needs of the future.

To show that we are drifting from, rather than towards, this desirable end, permit me to illustrate by comparing the resources of the city twenty years ago with those of the present year. In October, 1871, the great fire destroyed property estimated at $200,000,000. Less than eight months afterwards the assessed valuation of the property left was over $284,000,000. It is assumed that the $200,000,000 of property destroyed was estimated at its full value and that its assessed value would have been one-third, or say $66,000,000, which, if added to the assessed valuation of property after the fire, shows that in 1871, prior to the great fire, there should have been the amount of $350,000,000 subject to taxation. From 1871 to 1877, it is estimated that new buildings to the value of $50,000,000 were erected, and from 1877 to 1890, the record shows that 45,000 new buildings were erected, covering nearly 206 miles of frontage, costing $208,000,000, making a total of $258,000,000 in gross value or (on the one-third theory) $86,000,000 of assessable value of real property since 1871, which, to say nothing of increase in personal property, if added to the $350,000,000, the assessed value in 1871, represents a total estimated value at the present time, subject to assessment, of $436,000,000, which under the constitutional limit of 2 per cent. levy would represent an equivalent of $8,620,000; while the fact is, that with additional territory and an increase of about 400,000 in population between 1872 and 1889, to the old city, the assessed value of property is reduced to about $168,000,000, which, under the full limit of 2 per cent., gives about three and one-third million dollars for corporate purposes.

In 1873, the city embraced about thirty-six square miles, with an estimated population of 381,500. The total tax that year was $5,617,314, to which is added the revenue from licenses and miscellaneous sources of $364,160, making a total revenue of $5,981,474, equivalent to about $16 per capita of population, and $166,000 per square mile of territory.

At present there are 172 square miles of territory and a population of say 1,200,000. The total tax for 1889 was $4,022,000, to which is added revenue from licenses and miscellaneous sources of $2,351,000, making a total revenue for corporate purposes of $6,373,000—equivalent to $5.31 per capita of population, and about $37,000 per square mile of territory. It appears from these data, that if the assumed normal increase in the aggregate value of property, from 1871 to 1889, was assessed at the rate of about seven mills on the dollar instead of the present 2 per cent. limit, the city would have as much money for corporate purposes as is now secured by the system of low assessment and high rate.

Chicago has grown from 2.55 square miles in 1835 to 172.18 in 1889, as follows:

	SQUARE MILES.		SQUARE MILES.
February 11, 1835, original town			2.55
March 4, 1837, there was added	8.15	making	10.70
February 16, 1847, there was added	3.33	making	14.03
February 12, 1853, there was added	3.90	making	17.93
February 13, 1863, there was added	6.48	making	24.41
February 27, 1864, there was added	11.35	making	35.79
May 16, 1887, there was added	1.00	making	36.79
November and December 5, 1887, there was added	7.15	making	43.94
July 29, 1889, there was added	128.24	making	172.18

Of the present area 5.14 square miles are water, and 167.04 square miles are land—172.18.

Note.—The day following the reading of the message, two (2) square miles (Village of Gano) were added to the city's area.

DEPARTMENT OF PUBLIC WORKS.

A large amount of work has been prosecuted under the direction and supervision of the several bureaus constituting this important branch of public service. During the year 116 lineal miles of streets have been improved by grading, curbing and paving, as against 61⅓ miles during 1888. The cost of this work ranged from 5 per cent. to 24 per cent. cheaper than last year, while its character compares favorably with any heretofore done in this city. In addition to this, 155,000 square yards of pavement were laid in the line of repairs. The various street railways laid 141,000 square yards; 6,800 miles of streets have been cleaned, or about 1,200 more than in 1888. Most of this work was done by contract; 191 miles of sidewalks were constructed, being 77 per cent. over last year; 89 miles of pipe have been added to the water system.

The revenue for water during the year reached the sum of $1,655,000.

NEW LAKE TUNNEL.

The progress of construction of the new lake tunnel has been in some measure obstructed by the dangerous character of the soil through which it was to pass. To meet this difficulty, the course of the tunnel has been changed and two channels of six feet substituted for the original design of one of eight feet. These tunnels have been carried eastward under the lake a distance of 5,000 feet from the shore, and under the city westward to the Central Pumping Works at Harrison and Desplaines streets. This land branch of the work is completed and ready for use.

The Lake View water tunnel, commenced prior to annexation, is progressing favorably. It is designed to extend under the lake one mile. The people in that section of the city have petitioned for its extension for an additional mile into a greater depth and purer quality of water. I am of the opinion that such extension is desirable. The estimated cost of the work is $75,000, which might have been met in part if the former city of Lake View had marketed the bonds before referred to, which were designed for the purpose. I, however, commend this important matter to your careful consideration.

SEWERS.

During the past year, over twenty-four miles of various size sewers were built in the West Division; seven miles in the South Division; one mile in the North Division; thirteen miles in Hyde Park district; nine miles in Lake district, and nearly twelve miles in Lake View district — a total of over sixty-six miles.

The subject of drainage, in connection with the outlying districts, is one that requires prompt and careful legislation and engineering attention. From a personal visitation and examination in the southern part of our city, it seems apparent that a special method must be adopted to meet the present pressing necessities of certain localities. It is also clear that relief in this regard can be secured at present only by the expense being borne by the property benefited. In connection with this subject, I would call your attention to the ordinance now pending before your Honorable Body, proposing different methods of providing funds to meet the cost of sewers. The matter was recommitted to a committee of this Council, who have doubtless given it careful consideration. I would urge that the subject receive the prompt attention of Council, and, if as generally conceded, it is decided best to construct all sewers by special assessment, the work of construction can be entered upon at once, and to an extent much greater than in former years.

DRAINAGE AND THE RIVER.

The question of main drainage has been provided for by recent State legislation, which creates a Board of Drainage Trustees. It will be several years, however, before the new drainage channels can be made available; meantime it will be necessary to improve the Chicago river by establishing dock lines, looking to straightening and deepening. This branch of improvement should receive attention at an early day, in order to anticipate the probable erection of costly elevators and other expensive structures on the lines which may hereafter be required for river improvements. The lowering of the crown of Washington street tunnel three feet involves the deepening by dredging the bed of the river south of that point. The estimated cost of this work is about $200,000, but the appropriation made is only $50,000; hence it will be difficult to meet the demands of navigation. The marine commerce of Chicago is enormous, amounting during the last season of navigation, to nine million tons burthen. This great contribution to the commercial prosperity of not only Chicago, but to the Northwest should be generously fostered and properly provided for. The navigable condition of the river is maintained as far as possible at the expense of the taxpayers of Chicago, but our available resources do not admit of an appropriation sufficient for the purpose.

With the arrival and departure of about 20,000 vessels during the season, we are not aware that the city does or can receive one dollar fees or dues on this great number of craft, as a recompense for dredging the river and lighting it with electric lights; also for furnishing harbor masters and river police. The National Government exercises jurisdiction over the river, and it is within fairness that when Congress is considering appropriations for the improvement of obscure and insignificant streams everywhere, it should set apart an adequate amount for the benefit of the enormous tonnage plying on the Chicago river.

The south fork of the river has for years been in a very objectionable condition, and although frequently considered, no attempt has been made to improve it. This question was recently revived. The owners of the Stock Yards and slaughtering establishments, from which most of the filth finds its way into the stream, have indicated a willingness to co-operate with the city authorities in remedying the evil by building vats to intercept the flow of refuse from their establishments. In addition to this your Honorable Body has appropriated $150,000 for a pumping works, to be located at the head of the fork, which will aid not only in improving the condition of this portion of the river, but will force an increased quantity of water into the canal, and thus dilute the water delivered by the Bridgeport works into the same channel.

RAPID TRANSIT—RAILROADS.

The question of protection to life and property upon the railway tracks within the city limits is too fresh in your minds to need more than a passing reference. The recent ordinance passed by your Honorable Body provides for increased safety to the people, and, at the same time, allows rapid movement to trains. The railway companies, as a rule, are cheerfully and promptly complying with the requirements, and while elevated tracks and subways at street crossings would be a permanent solution of the matter, and far more desirable, yet to accomplish so radical a change would require a long time and involve much inconvenience. It is believed, therefore, that the walls, fences and gates contemplated by ordinances, will be at least a temporary improvement, and will be substituted by a more permanent system of protection in the near future.

STREET GRADES.

The fixing of street lines and the establishment of grades throughout the entire city, is a matter which should receive careful and prompt legislation. The means of determining these important data are limited in number and unreliable in character. I would recommend the establishment of substantial and permanent monuments and bench marks at suitable points at an early day, in order that the engineer and surveyor may be provided with an unquestionable basis for professional work.

DEPARTMENT OF HEALTH.

The department constituting this important branch of public service fully maintains the standard of excellence which has hitherto characterized its work. Although the duties of the Commissioner and his corps of assistants are arduous and exacting they have been discharged with a degree of fidelity and efficiency which have given general satisfaction and elicited the commendation of the public.

Uniform facilities for cleanliness and comfort are essential to the general health; therefore, all sections of our city and all classes of its population should be provided with an ample supply of water, and proper channels of drainage. That our citizens will cheerfully pay for these domestic necessities is shown by the extensive system of water pipes and ample supply of excellent water. There are nearly 1,100 miles of water pipe laid and in use in the city and only about 658 miles of sewers. The difference in the extent of water pipe and sewers (twin necessities from a sanitary standpoint) is due largely, if not wholly, to the fact that within the old city limits the cost of sewers has hitherto been borne by general taxation. Owing to our limited resources for this class of work, it would seem that the best and most expeditious way of extending the sewer system is by a uniform method of special assessment, levied on the property benefited.

The health of the city will be improved just in proportion to the character, extent, and excellence of its drainage and the purity and ampleness of its water supply. The latter promotes health, the former carries away that which is injurious to it. There are recorded instances where a decrease of over 35 per cent. in the annual mortality was made by a well designed system of drainage and it is fair to assume from this, that the difference between a good system or merely a natural or surface drainage would be correspondingly greater. The mortality rate in our city compares favorably with other large cities. During the year 1889, this rate was 17.49 to the thousand, due mainly to the extension of the sewer system in conjunction with the vigilance of the Department of Health. Through the efficiency of the corps of factory and tenement house inspectors, the sanitary police and others, nearly 18,000 official visitations and notices combined have been made and served for the purpose of correcting various violations of the health laws. The orders and instructions of the department were generally promptly complied with.

GARBAGE.

The question of garbage disposal is one which has enlisted much thought and consideration. The methods in vogue in our city for many years past have been and are objectionable and therefore unsatisfactory. The means at hand for this important branch of sanitary service are too limited to fully meet the cost of removal of garbage beyond the present remote limits of the city, but in addition to this there is a most serious objection to permitting the garbage of a great city to be removed to any place where it may be used to feed animals designed for human food, because investigations by sanitary scientists demonstrate that animals so fed become unfit for domestic use.

Appeals have been made to the public and vigorous efforts made by the Health Department to enforce the ordinance providing for the separation of garbage and ashes. A uniform compliance with the law in this regard, on the part of citizens, will give value to the ashes and greatly facilitate the removal of the combined refuse. Doubtless the most economical, expeditious and satisfactory manner of disposing of garbage is for every family to consign each separate accumulation to the heating furnace, cooking range or stove. The channels which carry off the gases emanating from fuel will provide for the escape of any odor or gases arising from burning small quantities of fresh kitchen refuse. Hundreds of families have adopted this plan with satisfactory results. For the public disposal of large quantities of garbage, unmixed with ashes, a number of properly adapted and suitably located crematories appears to be the best means at present that could be adopted for our city.

DISEASED CATTLE.

Cattle afflicted with so-called "lumpy jaw," or otherwise diseased, should not knowingly be permitted to enter our city for any purpose. The Commissioner of Health takes the position that such cattle are a menace to the public health, and that whenever and wherever they may be detected in our midst, by accident or design, they should be killed and placed under city supervision and beyond the possibility of sale as human food. The great Stock Yards Company and other gentlemen engaged in the vast meat industries in this city are in full accord with the position taken by the Commissioner, and his official action has my hearty endorsement The State Board of Live Stock Commissioners, however, have challenged the right of the city authorities to interfere with the State officers in the matter. The Live Stock Commissioners do not claim that the State law permits diseased cattle to be slaughtered for food, but they do claim that the State law permits the objectionable cattle to be brought to Chicago for other uses. The city authorities hold that to permit cattle afflicted with a disgusting disease to be brought into our city and be removed beyond city control and supervision is, for obvious reasons, an exceedingly doubtful protection to the public. These differences of opinion have caused some misunderstanding and brought forth some choice literature. The city authorities will yield a ready obedience to the law, and at the same time use every effort within its power to protect this community against "lumpy-jawed" cattle being sold in this market for food.

SMOKE.

The so-called "smoke nuisance" is one of the most perplexing questions with which the authorities have to deal. A series of careful experiments have been conducted by the city inspector with different devices, and diligent effort made by notice, suits and fines to cause an abatement of smoke. While there have been some good results, the problem still remains unsolved, and so long as large quantities of bituminous coal are used, it is likely our city will be annoyed with more or less smoke, or until public heating with steam or water through street mains be adopted, or the yet unknown or undeveloped device for the prevention of smoke is discovered. No doubt a high service water supply under a pressure sufficient for motive power, would in a great measure serve the place of many steam plants, thus reducing the volume of smoke. Nevertheless the authorities will use every means at hand to abate the nuisance as far as practicable.

FIRE DEPARTMENT.

The Fire Department maintains its acknowledged reputation for excellent management and practical efficiency. This arm of the city service consists of 842 men and officers; sixty steam fire engines; sixteen chemical fire engines; sixty-six hose carts; twenty-four hook and ladder trucks; one water tower; two fire boats; eighty-three apparatus stations; 377 horses and an extensive and well equipped repair shop. As an auxiliary to the department, there are 1,753 stations provided with the necessary instruments and several thousand miles of wire by which alarms of fire may be communicated.

During the year the department responded to nearly 3,000 alarms, due to fires of more or less extent, and involving the loss of five lives and a property damage estimated at $2,154,340.

The rapid improvement and increasing commercial and manufacturing interests in portions of our city embraced within the recently annexed territory, require greater protection than now exists against the ravages of fire. This will be provided for during the ensuing year as far as the amount appropriated for that purpose will admit. An important step in this direction will be the assignment of an efficient and powerful fire boat to the Calumet river.

FIRE ALARM AND ELECTRIC DEPARTMENT.

The Fire Alarm and Electric Department of the city is a bureau of the Fire Department. This branch of the service, always important and conspicuous for its efficiency, is becoming more so as electric science advances. The work of constructing and operating the public electric lights is assigned to this bureau. Three hundred poles and about sixty miles of alarm wire have been added to the annexed districts during the year. The city now owns and operates three independent light plants, two of which were constructed and put in operation during the past year. A fourth plant is about ready to start. Within these four districts there are sufficient conduits and cables in place to serve 1,000 lamps. At present, however, there are only 550 in use, but this number is being constantly increased. The city is divided into twelve districts. District No. 1 is fully equipped with conduits, etc., at a cost of about $30,000. The lights would have been put in operation several months ago, but the city was enjoined from erecting the necessary power house in the rear of the Exposition building, and as there were no funds for purchase of ground elsewhere, the work done in District No. 1 is idle. This branch of the work will be utilized at an early day by locating the power house on the city's property at Fourteenth street.

ELECTRIC LIGHTS.

The total expenditure for public electric lights is about $429,500; about one-third of this amount for subway works is not yet in use. The 550 electric lights now in operation have displaced 1,541 gas lamps, costing for gas $20 per annum, making a gross reduction in the cost of gas, of nearly $31,000. The subject of general use of electric lights, not only for the streets of our city, but also for dwellings and other private uses, is alike interesting and important, and invites the consideration of our city authorities. The ratio of cost per light decreases in proportion as the number is increased by the power of any one plant up to its maximum capacity. The city electrician states in his report, that from sixteen to twenty candle power gas costs the city from $18 to $20 per annum, or at the rate of about $1.00 per candle power per annum. Under the present unfavorable economic conditions 2,000 candle power electric lights cost $80 per annum, or at the rate of four cents per candle power per annum. While this statement discloses an enormous difference in cost per candle power, to say nothing of the advantages of electric light over gas for illuminating public highways, under the present unfavorable conditions the actual cost of electric light is at present about the same as gas. This is based on the fact that where one electric light at a cost of $80 per annum, is in operation, it displaces four gas lamps at $20 each.

In my judgment, the municipality should own, control and operate all works that produce that which is indispensable to its own and the general public necessities, and which could be furnished at little or nothing above cost. Chicago supplies her citizens with water. She provides channels of drainage. It is equally proper that the city should furnish her citizens with light for household purposes as well as for public use. Nor should we stop here. To furnish heat, power and intra-mural transportation are not only within the scope of legitimate legislation, but the practical establishment and operation of such, under municipal control, would meet a great public want, be a lasting benefit and prove a source of economy and convenience to the entire community. It is to be regretted that our city cannot, (owing to a lack of funds) give any consideration to matters of the kind at present, but I am persuaded improvements in the line referred to are within the range of probabilities in the near future.

Upon the subject of electric light, however, I feel that in addition to street lighting, the citizens should enjoy the privilege of the service suitably adapted for private use. This could be met by the comparatively small additional expense of increasing the engine and dynamo power at each plant and a consequent proportionate increased consumption of fuel. The same buildings and corps of attendants that is now required to furnish a hundred lights could perform the work necessary for 2,000 or more lights. I am informed that whenever a sufficient number of lights are to be generated at one plant, they will cost less than gas, and in time public lighting may, like our water works become a boon to our citizens, be self-sustaining, besides bringing in a handsome revenue to the city.

DEPARTMENT OF POLICE.

The peace and good order which prevail in our city is perhaps a fair criterion of the efficiency of the police force. Its members, in the main, have been attentive to their duties. Thus the good name of our city for order and protection to person and property has, as a rule, been maintained. The duties of a police officer in this great city are varied and exacting. It is not strange that among so large a number some should err.

The promotions, changes and transfers that have occurred from time to time during the year have been made with the sole object of rewarding merit and improving the efficiency of the force; the result thus far is satisfactory. The force consists of 1,621 men and officers. Of this number 295 are from the annexed districts. There are 149 horses, thirty-five patrol wagons, ten carts and thirty-one stations. Of these stations four were built or completed during the past year. These new buildings are large and commodious and compare favorably in arrangement and convenience with any buildings in the city used for like purposes.

The number of arrests during the year were 48,000 as against over 50,000 the previous year. In some of the outlying districts of the city a small number of the force has been mounted in order that they can more efficiently cover the large territory subject to patrol duty. The result has proven satisfactory and the system will be further extended if the means at hand will admit.

AMBULANCE CORPS.

An ambulance corps, with suitable vehicles for the conveyance of wounded or otherwise disabled persons, is greatly needed. The nucleus of this necessary and humane adjunct to the police service has been established by the presentation of an admirably designed and appropriate ambulance by Miss Ada Sweet. The benevolence and kindness of this lady is duly appreciated and the gift was properly acknowledged. It is proposed to provide a number of these ambulances; to establish ambulance stations or emergent hospitals in different parts of the city, using unoccupied portions of police stations for that purpose. I am informed that the medical and surgical aid required for this special service will be volunteers from the different hospitals and colleges.

MORGUE.

An appropriation of $10,000 was made last year by the city for the construction of a morgue on the grounds of the County Hospital. The plans were made under the supervision of the Coroner, and the work would have been executed, but the County Commissioners subsequently declined to furnish the promised site; hence, for want of ground, nothing further has been done. The necessity for one or more suitable buildings for the purpose is a pressing one. Owing to the extent of our city, there should be several temporary receptacles for the unknown dead. I have had plans made for "floating morgues." They could be located at different points on the river and its branches, and thereby be conveniently reached from all parts of the city. This plan appears to be unobjectionable, and, I may add, is endorsed by the Coroner.

BOARD OF EDUCATION.

The full detailed report of this highly important branch of public service discloses information that is interesting to our citizens generally. There are 2,600 teachers and superintendents. Total number of pupils enrolled, 120,886. Total number of school buildings, 198. These buildings have accommodation for 119,052, showing a lack of sittings for 1,834 pupils already enrolled. It is true so small a percentage of absentees may be relied upon to be the rule, yet it shows that additional school buildings are required to meet the rapid increase in population.

The total expenditures during the year were: In the old city, $1,969,932.38; in annexed territory, $482,621.73, making a total of $2,452,554.11. The value of school property in old city limits is $6,562,636. Value in annexed portion is not determined.

The cost per pupil for school term is about $16, or about 28 per cent. of the total value of school property. The revenue to school fund from rentals amount to $444,366.38.

PUBLIC LIBRARY.

The Public Library, after an existence of seventeen years, has become the third among the great libraries of the United States, having on its shelves at the close of the year about 153,000 volumes. This number is being increased at the rate of 10,000 volumes per year. These books are circulated among about 35,000 of our citizens. The total circulation for the year was 1,114,964. The library quarters are frequently visited by as high as 6,000 persons in one day. There are sixteen sub-libraries located in different portions of the city for the convenience of the public. The great need of this valuable institution is a suitable building of adequate proportion to meet its growing wants and better adapted to public access and convenience than the fourth floor of the City Hall. The Chicago public library was the recipient of a gold medal from the Paris exposition as an award for a display of the best system of conducting library affairs. The principal libraries of the East were competitors for the honor. Thus Chicago in this, as in most things, leads all competitors.

BUILDING DEPARTMENT.

The extent and character of the work done in the city under the authority and supervision of this department during the past year, is in excess of any like period in the history of Chicago. From 1876 to 1889 there were erected in the city 37,042 buildings, covering a frontage of 172 miles, costing $176,460,779, being an average of 3,087 buildings per year for twelve years, an average of fourteen and one-third miles of frontage, and an average cost of $14,705,065. The least number of buildings erected in any one year was in 1878, with a frontage of about six miles. The least expenditure was in 1879. The largest transaction for same period was 1888. Number of buildings, 4,958; twenty-two miles frontage; expenditure $20,360,800. During the past year the number of structures erected was 7,590, covering over thirty-four miles of street frontage, and costing $31,516,000. During the past year many noted buildings were erected and completed, among the latter the great Auditorium and also forty-one churches. The imposing public and private structures built range from six to sixteen stories in height and cover extensive ground area.

The total receipts of the Building Department during the year were	$37,933 55
Expenditures for same time	31,331 79
Surplus receipts over expenditures	$ 6,601 76

HOUSE OF CORRECTION.

The Superintendent of this institution reports the number of persons received for the year 1889 was 8,393, of whom 7,026 were males and 1,367 females. Eight thousand three hundred and fifty-three were discharged during the year, leaving in confinement January 1, 1890, 877. Three hundred and seventy-five of the prisoners committed, ranged in age from nine to fifteen years. Most of these youthful offenders were sent to the House for more or less petty offenses involving but slight fines. It appears to me from the character of the delinquency of those who are mere children in years, that justice and humanity would be best served by the magistrate administering a reprimand or a wholesome lecture to the child or lad who comes before him for the first time for some trivial offense, rather than inflict a fine involving a commitment to a prison for a few days, where he must mingle with old and hardened malefactors. I respectfully commend these considerations to the presiding magistrates of our city, to whom is assigned what is frequently a disagreeable duty. But whatever may be done in this regard it is clear that there should be an independent building under city control, devoted to the reformation of those of tender years, whose character and offenses necessitate imprisonment. Moreover, the minimum term for which juvenile delinquents are sentenced should be of sufficient length to work some degree of reformation. A knowledge that four to six months would be the least penalty for misdeeds, instead of a three or five dollar fine, would at least have a tendency to deter many from laying themselves liable. I invite the consideration of your Honorable Body to the necessity of providing an independent reformatory for boys and girls.

The general moral and sanitary condition of the institution has been greatly improved by the completion of additional buildings for prison and other purposes, also a larger and much needed hospital. During the eight months of the past year, the city physician was called upon to render professional aid to 3,428 prisoners. Nine deaths occurred at the institution during this period.

DEPARTMENT OF LAW.

There were 421 suits commenced and pending in court up to January 1, 1889. During the year just past, 233 new cases were filed. Of these, 170 cases have been disposed of. Judgments have been obtained against the city amounting to $188,319.87. The principal cases yet pending are for viaduct damages, and are referred to under the proper head.

Among the assets of Jefferson, recently annexed was a toll road, which is now in operation in the city. While this seeming anomaly is inconsistent with metropolitan conditions and the privileges of the people, there are certain vested rights which must be disposed of by the courts before the ancient custom of paying toll can be abolished. This matter is now before the courts and being pushed by the Law Department for final decision.

I invite your consideration to the propriety and necessity of recompiling and revising our Municipal Code, in order that the ordinances of the city may be made to conform to our present conditions.

CITY COLLECTOR.

The City Collector reports collections from all sources of $3,366,351.69, as against $2,769,624.46 for 1888, showing an increase of $596,727.23.

GAS LAMPS.

The number of gas lamps in service during the year 1889 was 24,878, as against 19,315 during 1888. The number of gasoline and oil lamps in use is 7,493, making a total of 32,371 street lamps in use.

USE OF THE STREETS.

It is to be regretted that a number of our leading thoroughfares are obstructed and disfigured by more or less unsightly canopies, awnings and the like, of a permanent character, extending from curb to building line. These structures are prohibited by city ordinance, and their existence is calculated to seriously impede the operations of the Fire Department. Permission to erect any additional structures of the kind on the principal streets should not, in my opinion, be sanctioned by this Council.

The streets of the city belong to the people, and should not be permanently occupied by private persons or public corporations, unless such occupancy will contribute to the public welfare and convenience. Even in such cases the people are required to pay for any advantages they may enjoy. The streets of our city are improved, cleaned, sewered, lighted, and, where necessary, are provided with viaducts, all at the expense of the tax-payers; it seems eminently proper, therefore, that the use of the public highways by corporations or others for business purposes should be governed by the principles that usually obtain in business transactions.

This system prevails in some cities, and there is no valid reason why it should not prevail in this city. Not long since a street railway franchise was granted in a neighboring city in consideration of the payment into the city treasury of 11¼ per cent. on its gross earnings. In another large eastern city a street railway company pays to the city $150,000 per annum, which is about $30,000 per lineal mile of its road bed, exclusive of taxes and license fees.

Our municipal authorities should be liberal in grants to corporations and just in the conditions imposed, in order that our city may be developed and its citizens accommodated. I submit, however, that no corporation or individual should be permitted to occupy the public thoroughfares for the purpose of sub-ways or surface-ways, except upon the payment of a fair equivalent for the special privileges. This would be no hardship. Had such course been adopted in the past, for the many valuable franchises granted, the city would now be in receipt of a handsome revenue, the tax-payer would be benefited, and the treasury would be in better condition to meet the public needs.

CONCLUSION.

A proper development of our present extensive city is a work of great magnitude, and will doubtless occupy years of time to accomplish. The rapid increase in population and the vast commercial and manufacturing interests of our city seem to justify the idea that it would be in the line of simplicity and economy in municipal affairs if the present cumbersome and unsatisfactory system of independent county and town boards could be abolished and their functions, so far as Chicago is concerned, be consolidated in one suitably organized legislative body, vested by the State with all the power and authority deemed necessary to govern what we hope will, in the near future, be designated the County and City of Chicago.

The administration of the city's affairs during the past year has not been wholly free from difficulties and embarassments incident to the extraordinary changes in municipal conditions, and the consequent increased duties and responsibilities imposed. However discouraging it may be to a public servant to have his integrity and motives maligned and misrepresented by unwarranted partisan malice, yet such seems to be the lot of every public officer charged with grave responsibilities. But when one is clad with an armor of rectitude and sincerity of purpose in the discharge of duty the sting of vilification is greatly lessened.

But however this may be, our city is too well established, its growth and development too well assured, and its opportunities and possibilities too great to be injured in the eyes of thinking men at home or abroad.

The record of the year's work is submitted to the judgment of fair-minded and impartial men. Whatever of merit may be found in it is due to those associated with me in the administration of city affairs, to all of whom I desire to express my appreciation of the efficiency and aid rendered, and I take pleasure in bearing testimony to their industry, ability and devotion to duty.

I have given you but a mere synopsis of the vast and varied amount of business and work which has been transacted and executed during the year. The voluminous and interesting reports made by the co-ordinate branches, departments and bureaus of the city government will present municipal affairs much more in detail and are worthy of careful perusal.

As before stated, the year 1889 is an important one in the history of Chicago. The claims of our city and the energy and ability of her citizens have been recognized by the people of the entire country, through their representatives in the Congress of the United States, by having designated this city as the proper location to celebrate by a grand international exposition, the quadri-centennial anniversary of the discovery of the Western Hemisphere by Christopher Columbus. The first official action towards securing the proposed exposition for our city was taken by this Honorable Body in July last, and while the result thus far must be gratifying to all, we should not lose sight of the fact that we are just entering upon the great task assigned Chicago, and that it will tax the energy and co-operation of every citizen, as well as wise and liberal action on the part of this Council in order to insure success and maintain the name and fame of our city.

In conclusion, I desire to express my thanks to the members of the old Council for the kindly consideration and official courtesies extended me during the past year. It will be my aim to merit your official aid and co-operation during the year just commenced.

It is earnestly hoped that the proceedings of this body and the official relations between its members may be characterized by that harmony and unity of purpose, that will inspire the respect and confidence of our fellow citizens, who have confided to this Council the great and important trust of faithfully guarding their interests and zealously promoting the welfare and prosperity of Chicago.

DE WITT C. CREGIER,

Mayor.

FOURTEENTH ANNUAL REPORT

OF THE

Department of Public Works

CITY OF CHICAGO.

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Department of Public Works

CITY OF CHICAGO.

COMMISSIONER.

W. H. PURDY.

SECRETARY.

D. S. MEAD.

Heads of Bureaus.

ENGINEERING.	
City Engineer,	W. R. NORTHWAY
SEWERS.	
Superintendent,	O. H. CHENEY
STREETS.	
Superintendent,	L. E. McGANN
SPECIAL ASSESSMENTS.	
Superintendent,	H. J. JONES
WATER RATE COLLECTIONS.	
Superintendent,	H. E. HAMILTON
MAPS.	
Superintendent,	R. A. MANSTEIN
ACCOUNTS.	
Department Book-keeper,	F. C. MEYER
Pay Master,	JOHN FREEMAN

Chief Clerk Water Rates,	H. T. MURRAY
Water Rate Assessor,	T. PATTISON
Water Permit Clerk,	H. G. NAPER
Cashier Water Rates,	JOHN W. LYONS
Registrar Water Rates,	W. S. MAHER
Meter Rate Clerk,	A. L. BROWN
In Charge of Private Drains,	B. F. DAVENPORT
Engineer in Charge North Pumping Works,	HENRY WELCH
Engineer in Charge West Pumping Works,	JAMES STEWART
Engineer Canal Pumping Works,	THOS. E. BELTON
Engineer Fullerton Avenue Pumping Works,	A. D. HOWELL
Engineer Sixty-Eighth Street Pumping Works,	ROBERT HAWKINS
Engineer Sulzer Avenue Pumping Works,	F. D. PARKER
Superintendent Water Meters,	G. J. BAKER
Superintendent Bridge Repairs,	J. B. TOOHY
Assistant Superintendent Bridge Repairs,	G. R. BRAMHALL
Lake Crib Keeper,	C. McKEE

REPORT

OF THE

Commissioner of Public Works

CITY OF CHICAGO.

COMMISSIONER'S REPORT.

OFFICE OF THE COMMISSIONER OF PUBLIC
WORKS, CITY HALL.

To the Honorable, the Mayor and City Council of the City of Chicago:

GENTLEMEN:—In conformity with existing ordinances I herewith present your Honorable Body with this, the Fourteenth Annual Report of the Department of Public Works, embracing in its details the various public improvements accomplished during the year 1889.

The change occurring in the management of this Department in consequence of the expiration of the term of office of the former administration, placed the undersigned in the position of chief officer of the Department of Public Works, and on the sixteenth day of April last, he entered upon his duties as Commissioner of such Department.

The year has been one of unusual activity and labor, not only in the increased amount of public improvement required by the extension of the area of the city, but by the confusion and inconvenience occasioned by the unavoidable changes made by the city in the system under which the various town organizations transacted public business. Such changes were so adjusted as to bring all differences to conform as far as possible to the methods and systems as established and in use under the original city government, temporarily waiving, however, such minor formalities as would seriously inconvenience, or interfere with the interests of citizens of such districts or towns, and allowing all public business and improvements to proceed, causing the least possible interruption or delay, which must necessarily, to some extent, attend so radical a change in so extended a jurisdiction of the municipal government.

In consideration of the disadvantages under which this branch of the city government has been placed in complying with the demands made upon it for public improvements of every description (particularly from the annexed districts), with an inadequate appropriation for such extended outlay, it became necessary that more than ordinary vigilance and economy be exercised in the expenditure and distribution of the funds placed at the disposal of this Department for such purpose. And with the enforcement of a rigid conservative policy in the employment of labor and the purchase of material, a greater amount was accomplished than was anticipated and the city and the citizens are greatly benefited in the extent, quality and cost of the improvement thus completed.

EXTENSION OF WATER SYSTEM.

Old City.

53.97 miles of water pipe, from four to thirty-six inches in diameter, were laid during the year, making a total of 729.83 miles now laid in the city.	
409 new water valves were added: total in place	5,506
642 new fire hydrants were added: total in place	6,983
1 fire cistern was constructed: making a total of	54
7,617 new house service taps were added, making a total of	133,284
7,617 new house service pipes were added, making a total of	133,284
The number of service taps inserted in water mains, including re-taps and taps inserted for enlarged service pipes to building previously supplied, is	8,808

The Annexed Districts.

LAKE VIEW.

The number of house service taps and pipes inserted in water mains from date of annexation, July 15 to December 31, 1889, is	889

HYDE PARK.

The number of house service taps and pipes inserted in water mains, from date of annexation, July 15 to December 31, 1889, is.......................... 1,730

TOWN OF LAKE.

The number of house service taps and pipes inserted in water mains, from date of annexation, July 15 to December 31, 1889, is.......................... 1,286

Total for annexed districts................. 3,905

EXTENSION OF SEWERAGE SYSTEM.

There were constructed during the year 32.39 miles of brick and pipe sewers, from twelve inches to seven feet in diameter, making a total of..............524.74 miles.

1,351 new catch-basins were added, making a total of.......................... 17,401

1,190 man-hole chambers were added, making a total of........................ 18,767

Old catch-basins were raised to grade, numbering 2,323

For water supply, pipe extension $536,047 50

For meters and private work by Water department.......... 53,229 74

Old man-hole chambers raised to grade, numbering	2,553
Old catch-basins and man-holes repaired, numbering	83
Number of catch-basins cleaned	8,769
Sewers cleaned to the extent of	206 miles.
House drains laid, amounting to	22½ miles.

STREET IMPROVEMENTS.

There were 115.90 miles of streets improved during the past year.

There were 155,195 square yards of street pavement repaired.

There were 140,909.80 square yards of pavement laid by the various street railway companies in streets occupied by their tracks.

Total streets in the city	2,047.28 miles.
Total streets paved in the city	578.15 miles.
Total streets otherwise improved in city	50.82 miles.
New sidewalks constructed	191.47 miles.
Sidewalks repaired	94.74 miles.
Total sidewalks in city	2,040.71 miles.
Streets cleaned	6,859.25 miles.
Number of aprons, culverts, crossings, etc., built	9,613

Number of street lamps (gas)	24,878
Number of street lamps (oil and gasoline)	7,493
Number of street lamps (electric)	403
Total number of street lamps in the city	32,774
Street lamps repaired	74,807
Number of buildings removed	1,356

MAPS AND PLATS MADE.

For new subdivisions	262
For street improvement assessments	447
For opening, widening and vacating streets and alleys	314
For sewerage assessments	13
For sidewalks	365
For Street Engineer's estimates	419
For lamp posts	1,764
For Law Department	465
For survey maps	101
For miscellaneous purposes	116
Total	4,266

TOTAL ASSESSMENTS PREPARED.

For improvement of streets and alleys	289
For private drains	167
For water service pipes	168
For street and alley openings	25

For new sidewalks	184
For gas lamps	122
For Dyott champion lamps	4
For oil lamps	31
For sewers	36
Total	1,026

MISCELLANEOUS.

SPECIAL IMPROVEMENTS.

Constructing steam passenger elevators and iron roof for the House of Correction.

Police station building at 99 North avenue.

Additions and alterations to police station at corner of Larrabee street and North avenue.

Additions and alterations to police station at Thirty-fifth street.

Completion of police station at corner of Maxwell and Morgan streets.

Constructing fire engine house at 758 W. Congress street.

Constructing fire engine house at 543 Jane street.

Constructing fire engine house at 460 Webster avenue.

Constructing steam elevator for Fire Department repair shops at Sebor street.

Dredging Chicago river and branches.

Repairing engines, Canal pumping works.

Erecting gallery in engine room, Harrison street pumping works.

Sweeping and cleaning improved streets.

Constructing bridge over Chicago river at Adams street.

Constructing bridge at Madison street.

Constructing bridge at Webster avenue.

Constructing sub-structure for Washington street bridge.

Machinery for Adams street bridge.

Machinery for Madison street bridge.

Constructing three buildings, including steam plant for electric light station.

Plate girder span west of Madison street bridge.

Constructing sewage pumping engines.

Constructing and completing addition to water works, including electric light plant in Hyde Park.

Constructing air compressor and ejector at Sixty-ninth and Peoria streets.

Laying inlet water pipe in Lake View.

Constructing pumping engines in Lake View.

CONTRACTS.

Contracts were entered into by the city for public improvements and various classes of material under the immediate supervision of this Department, incurring an expenditure of $4,149,459.27, as follows:

390	Contracts for street and alley improvements at a cost of..........	$2,647,327	00
16	Contracts for curbing, filling and grading streets, aggregating.....	100,110	65
118	Contracts for water-service pipes, costing	48,568	98
117	Contracts for private house drains, costing	30,374	39
19	Contracts for constructing sewers, aggregating....................	261,865	83
15	Contracts for erecting, completing and repairing Police stations, costing	50,961	63
2	Contracts for constructing fire engine houses, costing	26,620	00
2	Contracts for two steam passenger elevators and iron roof for House of Correction, aggregating.......	8,490	56
1	Contract for furnishing sewer pipe.	4,431	54
4	Contracts for furnishing pine lumber, aggregating	6,045	14
3	Contracts for furnishing oak lumber, aggregating..............	4,847	30
1	Contract for castings for water pipe, costing..................	10,303	74

2	Contracts for furnishing cast iron water-pipe, costing	$180,122	11
1	Contract for brass castings for hydrants and stop valves, costing	806	23
1	Contract for cast iron lamp posts, costing	2,476	55
1	Contract for glass for street lamps, costing	2,374	75
1	Contract for sweeping and cleaning streets, amounting to	101,070	49
1	Contract for dredging Chicago river, amounting to	43,475	85
1	Contract for repairing engines at Canal pumping works	4,196	00
1	Contract for gallery and engine room, Harrison street pumping works	5,725	00
8	Contracts for new bridges	295,436	00
23	Contracts for coal for pumping stations, police and fire department, shops, bridges, etc., aggregating	199,753	00
1	Contract for corporation ferrules, costing	1,770	00
1	Contract for Dyott Lamps, costing	1,656	00
3	Contracts for electric light plants, aggregating	54,482	00

1 Contract for man-hole and catch-basin curbs and covers	$10,605 28
1 Contract for cast iron covers for hydrant chambers	3,354 14
1 Contract for hydrant and stop-valve castings, costing	5,455 22
1 Contract for teaming for water and sewerage departments, costing	34,163 99
1 Contract for tug service	875 00
2 Contracts for repair shops, Fire Department, including steam elevator and Portland cement, aggregating	1,714 90

FINANCIAL.

Statement of the sum appropriated by the City Council, together with various amounts from other sources, to be expended in public improvements under the supervision of the Department, for the year 1889:

Balance Jan. 1, 1888, to credit of water, sewerage, general appropriation and City Hall funds	$ 634,793 86
From appropriations for 1889	2,120,111 20
For rent of Rookery lot	35,000 04
From interest on water fund investment	35,011 20
From premium on water loan bonds	6,257 81

From street lamps, special assessments and other funds	$245,584 55
From private parties, money advanced	36,438 68
From water revenue, including tapping permits	1,654,204 94
From drain permits and drain layers' licenses	39,261 11
*From railroad companies, on account bridges and viaducts	155,626 17
From house-moving permits	3,557 00
From special deposits for street permits	14,562 64
From labor and for material sold	192,489 36
From miscellaneous sources	7,088 88
From special assessments	4,220,869 93
Total	$9,400,857 37

Of this amount, expenditures have been made as follows from general appropriation, sewerage and City Hall funds in 1889:

For bridges and viaducts, dredging, street cleaning, public buildings, tunnels, Canal pumping works, Fullerton avenue pumping works, parks, work for private parties, salaries, City Hall, constructing and maintaining sewers and catch-basins	$2,648,649 27

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* Exclusive of $439,212.25 paid by railroad companies to contractors directly.

For new lake tunnel crib	$192,187 65	
For breakwater	28,181 93	
For interest on water loans	255,937 00	
For South Side pumping works	127,335 86	
For Central pumping works	172,465 65	
For crib protection (balance)	35,965 28	
For new tunnels	255,274 24	
For maintenance of water system, operating pumping works, cost of collecting water taxes, etc	625,844 70	
For street improvements, street openings, sidewalks, private drains, water service pipes, and lamp posts	2,830,513 57	
For rebate (excess of assessments over cost of improvements), abatements to property owners doing their own work, land damages and assessments held over and annulled by the City Council	$1,390,356 36	$9,151,988 75

BALANCE.

December 31, 1889, to credit of water, sewerage, City Hall and general appropriation funds.........	$248,868 62
Total........................	$9,400,857 37

WATER WORKS.

A supply of pure water adequate to meet the demands of the city ranks foremost in importance of the various public works coming within the care and jurisdiction of this Department. Its advantages and blessings cannot be over-estimated, and not only justify but necessitate a judicious expenditure of money in extension and maintenance sufficient to amply provide for the rapid growth and development of the city.

Such supply entering as it does into the comfort, convenience and health of domestic life, the success and prosperity of various mercantile and manufacturing interests, and the protection against conflagration, calls for a most wise and liberal extension of the water system.

The report of the City Engineer shows the amount of water supplied during the past year to be over forty billion of gallons, an increase of about four billions over the previous year, which indicates a large growth in both population and business.

An important change was made in a portion of the machinery of the North pumping works, which resulted very satisfactory.

During the years 1887 and 1888 publicity was given to the opinion that the engines of our pumping works were not being operated economically, and in order to effect a more economical operation, the engine known as the "'67 Engine" was changed from a double cylinder low pressure engine to a "compound" engine at a considerable expense, but experience proved this to be a mistake. A test was made in August, 1889, by a board of disinterested engineering experts, none of whom were in the employ of the city; this test proved that the change was a detriment rather than a benefit to the efficiency and economy of the engine. And it was then decided to change said engine back to its former condition. This having been done, a second test was made in January, 1890, by the same board of experts and practically under the conditions of former test, and the result showed an increase of 39 per cent. in the efficiency of the engine. The details of the test and of reports of the expert engineers will be found in full in the report of the City Engineer. Aside from such work, only the ordinary repairs have been made to the pumping machinery, and with such improvements and repairs the supply of water to consumers has been satisfactory during the entire year. With the completion of the new water tunnels and pumping machinery, which will be made ready for use at the earliest possible date, the city will be in possession of ample facilities for supplying to her citizens an abundance of pure water unequaled by any city in the world.

NORTH PUMPING WORKS.

(FOUR DOUBLE AND TWO SINGLE ENGINES.)

The "'67" engine at these works, during the last year received extensive alterations and an exhaustive test by a number of competent engineers, both before and after the change. The expert report demonstrates the wisdom of this change and will be found in full in the City Engineer's statement.

The quantity of water furnished by these works for the past year was 18,198,651,005 gallons, an average of 49,859,320 gallons per day under a head of 105.7 feet.

The cost of pumping and other expenses at these works, including coal and stores on hand, general repairs, etc., for the past year was $143,562.27.

WEST PUMPING WORKS.

(FOUR ENGINES.)

The quantity of water pumped at these works during the year was 22,305,593,400 gallons, being an average of about 61,036,387 gallons per day under a head of 106 feet, and the total expenses for the past year were $117,540.33.

The quantity of water pumped by these combined works during the year was 40,504,244,405 gallons, being equal to a daily average of about 110,895,707 gallons.

The total average pumping capacity of the engines now in use in the city is 153,000,000 gallons for each twenty-four hours. The greatest quantity of water pumped in any one day during the year occurred in July and August, for one or two days in each month, when from 122 to 124 millions of gallons were pumped.

NEW WATER TUNNELS.

LAND AND LAKE TUNNELS.

The new land tunnel connecting with the Central pumping station at Harrison street and the South Side pumping station at Fourteenth street, completing the entire land tunnel system, was finished March 28th last, and is 10,218 feet in length, of which 480 feet was constructed by city labor and 9,728 feet was contract work. There was constructed in connection with this work, three shafts by contract and three shafts by the city.

The Central station with its building and machinery is about completed, and the South Side pumping station with its machinery will be completed for service promptly upon the opening of the four mile lake tunnel.

Although the contractor has met with almost insurmountable obstructions in the prosecution of the work, causing great delay, yet with skillful engineering, the difficulties have been overcome, leaving at the close of the year a finished tunnel under the lake for a distance of 3,850 feet.

The successful placing of the four mile crib and the completion of the two and one-half mile temporary crib have been important events in the progress of the work, and will when completed admit of prosecuting the work of tunneling from four distinct faces. With these advantages the contractor will be able to more than double his present rate of speed of tunnel work, and provided there are no greater obstacles to overcome than those already experienced, the contractor will be in position to deliver to the city a completed tunnel within the time specified in his agreement.

Note:—On page 221, Engineer's Report, the item under "Constructed by Contractor" should read eight-foot instead of three-foot tunnel, 466.0 feet.

PIPE SYSTEM.

Water pipes were laid during the year as follows:

Four (4) inch	7,799 feet.
Six (6) inch	158,216 feet.
Eight (8) inch	68,678 feet.
Twelve (12) inch	15,743 feet.
Sixteen (16) inch	8,493 feet.
Twenty-four (24) inch	16,061 feet.
Thirty-six (36) inch	9,983 feet.
Total	284,973 feet.

The whole being equal to 53.97 miles. Small pipe taken up and abandoned, 1.22 miles; net pipe added to the system during the year, 52.75 miles—making a total of 729.83 miles of water mains laid within the former city limits. There was laid in the recently annexed districts 346.51 miles, making a total of 1,076.34 miles of water mains laid within the present city limits at the close of the year.

Fire hydrants placed in position during the year	642
Hydrants taken out and replaced by others of different sizes	26
Net number of hydrants added to the system	616
Total number of fire hydrants now in use	6,983
Stop valves put in place during the year	409
Stop valves taken out and replaced by others of different sizes	2
Net number of stop valves added to the system	407
Total number now in use	5,506

WATER METERS AND ENGINES.

Number of new meters put in during the year.	292
Number of old meters removed	127
Net increase	165
Total number of meters now in use	3,287
Number of city meters removed and replaced by new ones	87
Total number of meters repaired and charged for	1,043
Total number of meters repaired and not charged for	321

The revenue derived from water measured by these meters and engines for the past year amounts to $535,989.43, an increase of $18,472.38 over the amount collected from the same source last year.

WATER WORKS RECEIPTS AND EXPENDITURES FOR 1889.

RECEIPTS.

Water rates collected (including delinquents)	$1,621,786	34
Water service cocks (permits and plumbers' licenses)	32,454	60
Water meters, labor, etc., for private parties	55,985	97
Rent of Rookery lot	35,000	04
Advances to lay water pipe	22,323	68
Premiums on water loan bonds	6,257	81
Interest from investment	35,011	20
Old material sold	7,669	27
Salary of Inspectors, etc., from Lake View	4,424	00
Miscellaneous	2,428	88
Total	$1,823,341	79

EXPENDITURES.

For extension of water pipe system	$536,047	50
For water works repairs	126,041	16
For water service pipe and tapping department	37,321	68
For meter and private work	53,229	74
For North pumping works	146,586	52
For West pumping works	118,745	08
For South Side pumping works	127,335	86
For Central pumping works	172,465	65

For new water tunnels	$255,274 24
For new lake tunnel crib	192,187 65
For breakwater	28,181 93
For real estate	2,500 00
For lake tunnel crib	8,697 41
For crib protection (balance)	35,965 28
For interest on water loan	255,937 00
For advances for laying water main refunded	25,154 78
For water rents refunded	144 91
For salaries and office expenses, water collection office	130,608 12
For other salaries and office expenses payable for water fund	7,682 93
For lead and other material	4,492 32
For miscellaneous	17,869 79
Total	$2,282,469 55

Total cost of water works of the city to December 31, 1889, is as follows:

Cost up to May 6, 1861, when the works were transferred from the Board of Water Commissioners to the Board of Public Works	$1,020,160 21

EXPENDITURES SINCE 1861.

Cost of water pipe laid (including labor)	$7,812,132 37
Cost of North pumping works	918,573 14
Cost of West pumping works	896,849 37

Cost of first lake tunnel	$464,866 37
Cost of second lake tunnel	415,709 36
Cost of lake crib protection	149,431 63
Cost of new lake tunnel	232,466 19
Cost of land tunnel to West pumping works	542,912 63
Cost of new land tunnel	254,894 38
Cost of lake tunnel crib	70,319 10
Cost of lake shore inlet	42,871 17
Cost of new lake shore inlet	84,474 17
Cost of water works shop	25,551 78
Cost of water works stock	29,318 00
Cost of water reservoir fence	1,702 87
Cost of addition to stable	1,019 48
Cost of real estate for sites of new pumping works	206,972 35
Cost on account of Central pumping works	235,150 11
Cost on account of South Side pumping works	141,743 46
Cost on account of new lake crib	192,262 65
Cost on account of breakwater	28,181 93
Total cost of the entire water works to December 31, 1889	$13,772,562 25

Paid for as follows:

From general taxes	$2,713,878 53
From water loan bonds, 6 per cent	132,000 00

From water loan bonds, 7 per cent	$3,115,000 00	
From water loan bonds, 3.65 per cent	333,000 00	
From water loan bonds, 4 per cent	150,000 00	
From water loan bonds, 3½ per cent	225,000 00	
From water loan bonds, canceled	859,000 00	
From Surplus revenue	6,244,683 72	
		$13,772,562 25
Total water works income to December 31, 1889		$23,083,352 17
Total operating expenses and maintenance to December 31, 1889, including interest, $6,716,578.81, on bonded debt and bonds canceled		15,838,725 92
Difference between income and expenses		$7,244,626 25

Accounted for as follows:

Paid toward water works construction	$6,244,683 72
American Exchange National Bank, N. Y.	119,786 97
John W. Lyon, Cashier, (petty cash)	1,691 88
Meter department, stock on hand	10,000 96

Tapping department stock on hand.......	$5,164 53	
Shop and stable, stock on hand............	3,697 21	
Invested in city bonds..	875,280 00	
Water pipe, etc., on hand.	92,426 74	
		$7,352,732 01
Less amount due depositors for hydrant wrenches............	$1,260 00	
Less amount to credit of shop...............	134 66	
Less amount advanced by private parties to lay water pipe in non-paying districts......	34,186 49	
Less amount due City Treasurer..........	72,524 61	
		108,105 76
Total as above................		$7,244,626 25

BONDED DEBT OF WATER WORKS.

Water loan bonds outstanding December 31, 1889, bearing 7 per cent. interest, and maturing as follows:

July 1, 1890..........	$268,000 00	
July 1, 1892..........	821,000 00	
July 1, 1894.........	541,000 00	
July 1, 1895..........	1,485,000 00	
		$3,115,000 00

Bearing 6 per cent., maturing as follows:		
July 1, 1897	$50,000 00	
July 1, 1898	82,000 00	
		$132,000 00
Bearing $3\frac{65}{100}$ per cent., maturing as follows:		
July 1, 1902		333,000 00
July 1, 1908, bearing 4 per cent. interest		150,000 00
July 1, 1909, bearing $3\frac{1}{2}$ per cent. interest		225,000 00
Grand total		$3,955,000 00
Total interest paid on water loan, to January 1, 1890		$6,716,578 81

Under the various orders and ordinances of the City Council, amounts have been rebated on water rates during the year, as follows:

On educational, religious and charitable institutions, under ordinance of November 21, 1884	$13,941 04
Municipal and Board of Education, under ordinance of July 30, 1885	20,647 63
By special orders of the City Council	42 50
Total amount rebated	$34,631 17

The following table indicates the quantity of water furnished, the total revenue received, and the average amount per million gallons annually, from 1858 to 1889, both years inclusive :

YEAR.	MILLION GALLONS FURNISHED.	REVENUE.	REVENUE PER MILLION GALLONS.
1858................	1,092	$102,178 85	$93 57
1859................	1,415	122,753 50	86 70
1860................	1,717	131,162 73	76 39
1861................	1,766	131,035 10	74 15
1862 (15 months).....	2,705	188,448 25	85 00
1863 (9 months)......	2,336	192,246 39	82 29
1864................	2,523	224,902 57	89 14
1865................	2,778	253,114 49	91 11
1866................	3,169	302,017 59	95 30
1867................	4,232	338,929 28	80 08
1868................	5,375	420,686 94	78 26
1869................	6,801	476,968 24	70 13
1870................	7,945	539,180 19	67 86
1871................	8,423	445,834 64	52 93
1872................	10,051	544,465 90	54 17
1873................	11,723	708,804 32	60 46
1874................	13,903	705,926 64	50 77
1875 (9 months)......	10,957	635,996 54	58 04
1876................	15,346	771,940 38	50 30
1877................	19,047	908,509 64	47 70
1878................	19,564	944,190 97	48 31
1879................	20,557	922,001 26	44 85
1880................	21,002	865,618 35	41 21
1881................	23,331	936,922 07	40 16
1882................	24,150	1,049,576 90	43 46
1883................	26,742	1,142,868 54	42 73
1884................	29,286	1,204,338 74	41 12
1885................	33,451	1,339,038 00	40 03
1886................	35,693	1,374,837 32	38 52
1887................	37,199	1,490,023 68	40 05
1888................	38,122	1,557,116 78	40 84
1889................	40,504	1,621,786 34	40 04

SEWERAGE.

The sewerage system has been extended in the various divisions of the city during the past year as follows:

Constructed in the West Division......	24.18 miles.
Constructed in the South Division.....	7.17 miles.
Constructed in the North Division.....	1.04 miles.
Total......................	32.39 miles.

Number of catch-basins built...............	1,351
Number of man-hole chambers built.........	1,190

The cost of constructing sewers and catch-basins during the year was as follows:

West Division.....................	$64,636 96
South Division.....................	62,169 60
North Division.....................	23,427 98
Total......................	$350,234 54

Total number of catch-basins.........		17,401
Total number of man-hole chambers...		18,767
Total number of miles of sewers within original city limits................	524.74	
Total number of miles of sewers in annexed districts..................	188.17	
Total number of miles of sewers in the city..........................		712.91

MAINTENANCE OF SEWERAGE.

The cost of cleaning and repairing sewers, the cost per mile, and number of miles; also the number of catch-basins and man-hole chambers distributed in the three divisions of the city, is as follows:

DIVISIONS.	MILES OF SEWERS.	NUMBER OF CATCH-BASINS.	NUMBER OF MAN-HOLE CHAMBERS.
West..............	302.79	9,859	10,740
South.............	139.64	4,734	5,051
North.............	82.31	2,808	2,976
TOTALS..........	524.74	17,401	18,767

The cost of repairing sewers during the year was $10,122.22, being an average cost of $19.29 per mile.

The cost of cleaning was $61,503.01, making the average cost $117.21 per mile.

The total cost of both repairs and cleaning was $71,625.23, an average cost of $136.50 per mile.

Of the 524.74 miles of sewers constructed, 261.18 miles are of brick, and 263.56 miles of vitrified pipe.

TOTAL COST OF SEWERS, ETC.

DIVISIONS.	MILES.	COST.	AVERAGE COST PER MILE.
West..............	302.79	$4,294,356 27	$14,182 62
South..............	139.64	*1,960,077 50	14,023 84
North..............	82.31	†1,270,292 79	15,290 12
TOTALS..........	524.74	$7,524,726 56	$14,314 09

*Of this amount, $1,788.00 was advanced by private parties and expended for sewers in Hyde Park and charged to "Sewers, South Division."

†Of this amount, $11,762.70 was advanced by private parties and expended for sewers in Lake View and charged to "Sewers, North Division."

BONDED SEWER DEBT.

Sewer Bonds outstanding December 31, 1889, bearing 7 per. cent. interest and maturing as follows:

July 1, 1892	$490,000 00
July 1, 1894	785,000 00
July 1, 1895	13,000 00
July 1, 1890, bearing 4½ per cent. interest	489,500 00
July 1, 1904, bearing 4 per cent. interest	458,000 00
July 1, 1908, bearing 4 per cent. interest	387,000 00
Total sewerage debt............	$2,622,500 00

RIVER IMPROVEMENT BONDS.

Bonds outstanding December 31, 1889, bearing 7 per cent. interest and maturing as follows :

July 1, 1890	$250,000 00	
July 1, 1892	249,000 00	
July 1, 1893	500,000 00	
July 1, 1894	346,000 00	
July 1, 1895	1,263,000 00	
Total River Improvement debt		$2,608,000 00
Grand total outstanding		$5,230,500 00
Total interest paid on Sewerage bonds to January 1, 1890		$4,877,248 50
Total amount paid as interest on River Improvement bonds to January 1, 1890		3,944,740 00
The whole amount paid as interest on Water, Sewerage and River Improvement bonds combined		$15,538,567 31

THE CHICAGO RIVER.

The Chicago river, contributing in no small degree to the wealth and greatness of our city, should be so improved as to admit of the free passage of all vessels seeking to navigate its waters. The reconstruction of the Washington street tunnel has removed a serious obstruction to the navigation of the south branch of the river, and will now admit of the passage of vessels drawing about seventeen feet of water, adding an additional three feet depth of water over the tunnel.

The improvement thus made renders desirable the deepening of the channel south of Randolph street to an equal depth below city datum, which will involve a large expenditure of money. That the river lots and other property benefited by such deepening should pay the bulk of such cost there is no doubt, and the validity of a special assessment levied for such purpose should be tested in such case.

The report of the Vessel Dispatcher shows the arrivals and departures of vessels at this port to be 19,014, representing a total carrying capacity of 8,821,049 tons, the whole suggesting an immense traffic in the commerce of the lakes, which should not be diverted from our city by reason of any failure or neglect to provide, as far as possible, for the convenience and protection of such an important branch of industry. The lighting of the river by electricity still proves a great assistance in the movement of vessels at night, and should be extended along the entire river as soon as circumstances will admit. The system as operated is greatly appreciated by navigators of the river and vessel owners.

The importance of maintaining our river in the best possible condition for navigation can only be understood by an investigation of the vast amount of business transacted daily along the line of our wharves; suggesting the fact that our city is the great distributing center for all classes of shipments, from the east to their destination westward, and the emporium through which the immense products of the West, from her network of railroads, are received and passed through the great waterways of our inland lakes to the markets of the world. In view of the present magnitude of such traffic, and the unprecedented growth and development of the West, I deem it wise that the improvements made to better the condition of our harbor and river navigation should be of a character and extent which will provide ample facilities to meet such growth.

THE ANNEXED TERRITORY.

The former boundaries of the city of Chicago contained 47.25 square miles or 30,240 acres; the territory acquired by annexation July 15, 1889, added to the city 126.75 square miles or 81,120 acres, making the present total area about 174 square miles or 111,360 acres, the greatest length, north and south, being about twenty-four miles, and the greatest width, east and west, about ten and one-half miles.

The city has a frontage on Lake Michigan of twenty-two miles, and a river frontage of about fifty-eight miles, (both sides)—twenty-two and one-half miles of which are navigable. There are three lakes within the present city limits, covering an area of about 4,095.6 acres, as follows: Calumet Lake, 3122 acres; Hyde Lake, 330.8 acres; and that portion of Wolf Lake lying within the city limits, 642.8 acres. Calumet Lake is considered navigable, the other lakes having a depth of water varying from four to eight feet.

The report of the Superintendent of Maps furnishes valuable information concerning the growth of the city, and is illustrated by a map showing the dates and boundaries of the various portions annexed.

CITY ELECTRIC LIGHTING.

To our electric light underground system we have added 12,109 feet of conduit, 256,983 feet of iron pipe, 66 miles of electric light cable, 122 man-holes, and 44 hand-holes. The original river plant, which was installed December 24, 1888, has been in continuous operation since, and the universal cry for electric lights from the various quarters of the city warrants me in saying they are giving satisfaction. The rebuilding and changes made in bridges, viaducts, etc., have necessitated the changing of a number of posts and cable; the Department has made a large saving in repairs on lamps by having same done in the electric repair shop.

The past year the greatest amount of work performed has been in the construction of subways for electrical conductors. They were laid out and built according to the following general plan: The (old) city was divided into twelve electric light districts. Each district is to have a power station located as near the center as possible; from each power station a main subway is to be built extending across the district from boundary line to boundary line, and decreasing in duct space from the power station towards the boundary lines. From these, main feeders are to be run out at right angles to the line of the subway and reaching to the other boundary lines; from these feeders, connections are made to the lamps. On all streets where fire or police boxes, engine houses or police stations are located, enough duct space has been provided to accommodate the underground wires necessary for these departments. A main subway of multitubular blocks of bituminous concrete was built in the North Division, laid in the street and embedded on all sides with three inches of concrete, composed of Portland cement, sand and lime-stone screenings and reached by large octagon-shaped man-holes.

A main subway of multitubular blocks of bituminous concrete was built in the West Division, laid in the street on a three-inch foundation of concrete, composed of Portland cement, sand and limestone screenings and reached by round man-holes.

A main subway was laid in the South Division of cement-lined wrought iron pipes laid in the street, and imbedded on all sides with three inches of concrete, composed of Portland cement, sand and granite screenings and reached by octagon-shaped man-holes.

The feeders throughout are two-inch iron and steel pipe laid under the sidewalks, inside the curb wall, or in the street, wherever it was considered the best and most economical to lay them. Where laid in the street, small man-holes and hand-holes were built.

Work has been done on four of these districts.

In District No. 1, bounded on the north and west by the Chicago river, on the south by Sixteenth street, on the east by Lake Michigan, the main subway has been built and feeders laid to light all the district north of Van Buren street. This work cannot be utilized until a power station is provided.

In District·No. 4, bounded on the north by North avenue, south and west by the Chicago river, east by Lake Michigan, the main subway has been built and feeders laid to supply 167 lamps on the main streets of the district. A power house is built, cables laid, posts set and the work of setting dynamos, machinery and boilers is rapidly nearing completion.

In District No. 6, bounded on the north by Kinzie street, south by Sixteenth street, east by Chicago river, west by Ashland avenue, the main subway has been built and feeders laid to connect 80 lamps in addition to those already in the district. A power house has been built and the setting of dynamos, machinery and boilers and drawing in of cables is being pushed as rapidly as possible.

In District No. 8, bounded on the north by North avenue, south by Kinzie street, east by Chicago river, west by Western avenue, the power house is nearly completed, and feeders laid to connect 119 lamps on some of the main streets. The feeders and cables in this district have been laid so as to connect with the main subway when it shall be built.

In undertaking to light a portion of several districts, the proportionate cost per lamp is necessarily much greater than if the whole of each district could be lighted at once, as the land, buildings and subways must be provided for the entire district, and only a portion of them used.

As for instance, we have built during the year 126,399 feet of duct space in the main subways, and will use 36,539 feet, leaving 89,860 feet for future use. A still greater proportion of the land purchased and buildings erected cannot be used until each district is supplied with the proper number of lamps. Of the pipe laid for electric light feeders, about two-thirds of the cable room will be occupied at once, leaving one-third for future use.

When the lamps to which the feeders are now laid are connected, we will have about 120 miles of cable in service and 651 lamps, whereas, if the four districts through which these cables extend were completed, the same amount of cable would supply about 1,000 lamps.

An electric light post possessing some peculiar advantages has been designed and adopted. It consists of a hollow iron base extending from the sidewalk to a height of seven feet, a hollow wooden pole extending through the iron base to a height of nine feet above the iron base, the wooden pole being firmly secured to the top and bottom of the iron post. There are two doors on opposite sides of the iron base at a height of five feet from the sidewalk, and a removable panel near the bottom, and a frame and hood extending from the top of the pole, having but one standard or support. Inside of one of the doors is placed a wooden box containing a double pole arc light switch; in the other there is a receptacle for a fire alarm box. The panel can be removed to facilitate the handling of cables. The advantages of this pole are many. First and preeminent in importance is the safety it offers to human life, as in case of accident to the lamp the workman can entirely disconnect it from the rest of the circuit without a possibility of contact with the conductor, by throwing the switch near the base of the pole. The wooden pole is a semi-insulator, and is much safer to work from than an iron pole, should it be necessary to regulate the lamp while burning. The hollow space between the iron and wooden poles offers a receptacle not only for an electric light switch and fire alarm box, where the latter is needed, but if in the future the city should need incandescent lights for city or private use, there is a room for a convertor by which a high tension current can be changed into a low tension current for incandescent lighting. The single standard or support for the lamp only gives off one shadow, and that can be directed against the part of the nearest building where it will be the least objectionable.

The electric light underground system now comprises: 12,169 feet of conduit, 398,744 feet of iron pipe, 120 miles of electric light cable, 164 man-holes, 125 hand-holes.

BRIDGES AND VIADUCTS.

The cost for maintaining these structures for the year was as follows:

For general repairs of bridges and viaducts	$166,139 37

Of this amount there was received for labor and material, and from vessels for damages to bridges............	$2,703 25
Net cost to city for repairs of bridges and viaducts......................	$163,436 12

FULLERTON AVENUE PUMPING WORKS.

The past year 6,281,386,508 cubic feet of water were forced from the lake into the river at the Fullerton avenue works, at a cost for operating and maintenance of $21,107.14.

CANAL PUMPING WORKS.

These works have been in constant use during more than three-quarters of the year. The total cost of operating and maintaining them was $74,305.02, which includes the large sum spent in extensive repairs and overhauling of the pumps, new floors, new bridges, etc., all of which can be found fully explained in the report of the City Engineer.

THE OGDEN DAM.

The Ogden dam is in excellent condition.

The amount expended during the year was $5,793.68, which includes the payments made for the practical rebuilding of the dam last year.

STREETS.

During the year streets were improved as follows:

Paved with cedar blocks	62.75 miles.
Paved with macadam	38.45 miles.
Paved with granite blocks	5.68 miles.
Paved with asphalt	.80 miles.
Total number of miles paved	107.68 miles.
In addition to the above, streets were curbed and filled for	6.29 miles.
And curb wall built for	1.93 miles.
Making a total of	115.90 miles.

The various classes of street pavement as laid by the city during the year do not differ in quality or method of construction from preceding years.

In the residence portion of the city the cedar block pavement is mostly in use, owing principally to its cheapness, and while it proves reasonably satisfactory to the public, it does not, under the present system of construction, rank as a first-class improvement.

This pavement, when properly laid upon a permanent foundation of macadam or concrete, possesses many satisfactory qualities not found in other paving material, and would be preferable to many. And while the first cost of such improvement would not be at all excessive, the increased durability of the pavement, the inexpensive repaving or re-surfacing of the same, with other advantages is sufficient to warrant the extra expenditure. A cedar block pavement thus laid would be a very successful competitor with other first class street improvements.

It is apparent, however, that for the better class of residence streets, the sheet asphalt pavement is growing in favor, owing largely to the perfection reached in the preparation of the material in adapting it to the extremes of climate, giving a smooth and cleanly surface, shutting out all foul and poisonous gases, and leaving the street in a perfect sanitary condition. Such qualities in a pavement must recommend it to the public, and eventually it will become one of the leading street improvements of the city.

It will be a matter of just pride and satisfaction when our city presents a class of street improvements in every way equal to the substantial and elegant structures which line our thoroughfares. It is essential that public improvements of all classes should keep pace with the advancement and spirit of private enterprise in our city.

While great care has been exercised in providing the best possible pavement for the business portion of the city, the material used cannot be considered entirely satisfactory. The granite blocks, although laid in the best manner upon a permanent foundation, yield readily to the constant wear from heavy traffic, which gives to the pavement an uneven and slippery surface, leaving very slight and uncertain footing for heavily laden teams, and causing many serious and fatal accidents to valuable horses.

Notwithstanding the many reasonable objections urged against this material, it is undoubtedly at present the best obtainable for such use.

In providing for the temporary improvement of roadways in the outlying districts, I would suggest, as an economic measure, that the macadam be laid in such a manner and at such a grade as will admit of its being used as a foundation for the permanent improvement which will eventually follow.

ASSESSMENTS BY INSTALLMENTS.

The act recently passed by the Legislature of the State of Illinois providing for the payment of special assessments in installments possesses many excellent features, and recommends itself for general use in the levying of special taxes for the improvement of our thoroughfares. While the new law does not prohibit the full payment of the assessment upon the completion of the improvement of the street, it makes it possible for the amount assessed to be paid in five annual installments, each of such installments remaining unpaid, to bear interest at the rate of six per cent. per annum.

The enactment of this law was intended to benefit a large majority of property owners who through industry and economy are striving with their moderate yearly income to pay for their homes, and to save them from jeopardizing their property in consequence of being obliged to add an additional incumbrance on their homes to meet the full amount of their assessment, as required under the now pending system.

In order to provide as far as possible a remedy for the evil inflicted upon this class of tax-payers under the old law, there has from necessity been brought into practice the postponement of the collection of the amount from one to two years after the letting of the contract for such improvement.

This practice is a growing evil in which the city is the principal sufferer, in assuming an indebtedness for its proportion of the cost of such improvements and relying solely upon some future appropriation to liquidate such claims, such amounts assuming large proportions yearly and absorbing the principal part of the annual appropriation for such work.

A further evil attending the collection of the full amount of the assessment in a single payment, is rebating to the tax-payer the difference if any between the cost of the improvement and the amount assessed. The annoyance and dissatisfaction connected with this and other defects named, will find a remedy in the general adoption of the new law.

The increasing demands for the improvement of streets in the recently annexed districts as well as within the limits of the old city boundary, renders it necessary that the protection and benefits provided in the new law should be extended to those bearing the burden of taxation.

With the establishment of such a liberal and just system of special taxation a more general and extended improvement of our thoroughfares will follow throughout the city, and will particularly enable the residents of the outlying districts to provide for themselves better and more substantial roadways.

As a matter of convenience to the city, and without detriment to property owners, I would suggest that there be excluded from the installment system of special taxation, the construction of minor or inexpensive improvements, including the construction of sidewalks, laying house-drains and water service pipes. Such work requiring only a small outlay to each ordinary size lot could be provided for under the old assessment system without incurring hardship to the person assessed.

In view of the excessive amount required to be appropriated annually to provide for the payment of the city's portion for street improvements, and the rapid yearly increase which must follow the extension of the city's area, I deem it essential that a very large proportion of such sum should be assessed and made available for such expense from the property benefited by such improvement. Such action is rendered necessary and unavoidable in consequence of the inadequate amount appropriated or accessible to provide for material and labor for street and other improvements and repairs which must be paid from the general fund of the city.

A copy of the Legislative act providing for the payment of special assessments in installments follows. The provisions of the act will be found worthy of attention :

INSTALLMENT ACT.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* that article nine of an act entitled "An Act to provide for the incorporation of Cities and Villages," approved April 10, 1872, in force July 1, 1872, be and the same is hereby amended by adding thereto the following sections, viz.:

168 *a*. MAY BE DIVIDED INTO INSTALLMENTS. SEC. 55. That the amount of any special assessment for any local improvement in any city, incorporated town or village may be divided into installments, when so provided by the ordinance providing for the said improvement, the first of which shall not exceed the sum of twenty-five per cent. of the total of said assessment, and which shall be due and payable from and after confirmation of said assessment. The remaining portion of said assessment, after deducting the said first installment, shall be divided into four equal annual installments, which said installments shall be payable annually thereafter, and collected in the same manner that other assessments are now collected. Each of said four last named installments shall bear interest at the rate of six per cent. per annum from and after the first day of July next succeeding the

confirmation of said assessment: *Provided*, that when said confirmation shall not be had before the first day of March in any year, that said four last named installments shall not bear interest until the first day of July in the following year after the said confirmation; *Provided*, that in cities containing a population of fifty thousand or more, this and the following sections shall not apply except in cases where any such special assessments shall exceed in the aggregate the sum of fifteen thousand dollars.

168 *b*. MAY BE PAID BEFORE MATURITY—INTEREST. SEC. 56. That any installment or installments which may be assessed against any tract, lot, block or piece of land, may be paid at any time before maturity, in which case interest shall be charged only to the time of payment, and upon such payment the property for which said payment is made shall be discharged from the lien to the extent of such payment.

168 *c*. WHEN BY INSTALLMENT—ORDINANCE. SEC. 57. Whenever any city, incorporated town or village desires to make the collection of any special assessment, as aforesaid, by installments under the provision of this act, the ordinance providing for said improvement shall also state that the same shall be collected by installments, and fix the amount of the first installment.

168 *d*. ASSESSMENT ROLL—WHAT TO CONTAIN. SEC. 58. Upon the assessment roll to be returned by the commissioners shall be designated, in appropriate columns, first the amount of each installment; second, the total amount of the assessment, which said items shall be carried out and set opposite each tract, lot or piece of property so assessed.

168 *e*. NOTICE—WHAT TO CONTAIN. SEC. 59. The notice to be given by the collector as now provided for by law when the assessment is under the provisions of this act, in addition to what is now required, shall contain the amount of each installment, the rate of interest deferred installments bear, the date of payment and that the whole of said assessment, or any installment thereof, may be paid at any time at the option of the owner or owners of said lot, block, piece or tract.

168 *f*. ORDER OF CONFIRMATION. SEC. 60. The order of confirmation that shall be entered upon the return of any such assessment roll shall apply to all of the installments thereof, and may be entered in one order.

168 *g*. WARRANT FOR COLLECTION. SEC. 61. The warrant for the collection of any such special assessment to be made hereunder shall contain a copy of such certificate of the judgment, describing the lots, blocks, tracts or parcels of lands assessed and the respective amounts assessed upon each lot, tract, piece or parcel of land, and the year in which each installment is payable.

168 *h*. PROCEEDINGS FOR JUDGMENT. SEC. 62. Proceedings for judgment and sale against lots, tracts, pieces and parcels of land for which the assessment has not been paid, shall be had in the same manner as now provided upon each installment in the respective years in which they become due and payable, and the laws now in force, in so far as they are applicable, shall apply.

168 *i*. PAYMENT FOR IMPROVEMENT DONE—VOUCHER. SEC. 63. Payment for any improvement done or performed under the provisions of this act shall be made in the following manner: From the amount of the first payment, when it shall be collected, shall first be paid all the costs of making the said assessment, including court costs. The remainder of said payment shall then be paid to the person or persons entitled thereto on the contract for said work. The amount remaining due upon the contract for said improvement shall then be divided into four equal parts, and the authorities of any city, incorporated town or village, shall issue a voucher to the person or persons entitled thereto for each part payable in same order and manner that the installments are payable, and said vouchers shall bear the same rate of interest per annum that the said installments bear. Said vouchers shall be made payable to the order of the person or persons entitled thereto, and state the improvement and the installment for which they are issued. They shall also contain the following:

> In consideration of the issuing of this voucher, I hereby for . . . . sel . . . . heirs, executors, administrators and assigns, accept the same in full payment of the amount herein stated, and relinquish any and all claims or liens I may have against the (city, incorporated town or village) of . . . . for the work mentioned herein, or for the payment of this voucher, except from the collection of the installment herein named.
>
> *(Signature of person receiving the same.)*

168 *j*. PERSON ACCEPTING VOUCHERS. SEC. 64. Any person or persons accepting the vouchers, as provided herein, for work done or performed upon any local or public improvement, shall have no claim or lien upon the city, incorporated town or village, in any event for the payment of said vouchers or the interest, except from the collection of the installments for which said vouchers are issued; and *provided*, that this section shall apply to all holders of any of said vouchers, whether the original contractor or their assigns.

168 *k*. SURPLUS REMAINING—NOTICE. SEC. 65. If, upon the payment of the money and issuance of the vouchers, as provided for in the last section hereof, there shall be any surplus remaining of said special assessment over and above the payment aforesaid, it shall be the duty of the proper authorities of said city, incorporated town or village to at once cause the respective installments to be credited with their respective proportion of said surplus, and in case any person or persons have, before said credit has been entered, paid his assessment or any part thereof, without having received the benefit of said credit, the proper authorities shall at once cause notice of such overpayment to be sent by mail to the person by whom such overpayment was made, and upon proper proofs the same shall be repaid.

168 *l*. SPECIAL ASSESSMENT—WHEN CITY MAY ADVANCE TO PAY DAMAGES. SEC. 66. In case said special assessment shall be made for the purpose of paying the compensation awarded for the taking or damaging of private property for public use, payments may be made as provided herein, in the case of contracts let and the acceptance by the owner of any lot, piece or tract taken or damaged of the vouchers issued shall be deemed payment to said owner or owners of said compensation, and upon proof thereof, an order of possession may be entered, as is now provided; *Provided*, that after a special assessment has been confirmed to pay for property taken or damaged for public use, the city council in cities and the president and board of trustees in villages may appropriate and advance a sufficient amount to pay the compensation awarded, or so much of the same as shall not have been paid by acceptance of vouchers as herein provided; *Provided*, however, that such appropriation and advancement shall in no way affect the collection of said assessment, but the

same shall be collected in the same manner as though said appropriation had not been made; and, *provided*, however, that when such assessment shall have been collected, that the same, together with the interest thereon, shall be paid into the general fund of said city, incorporated town or village in liquidation of the amount so advanced.

168 *m*. WHEN COLLECTED BY INSTALLMENT. SEC. 67. In all cases where special assessments shall have been made, but not confirmed, it shall be lawful for any city, incorporated town or village, through its legislative body, to provide by ordinance that said assessment may be collected by installments, under the provisions of this act.

168 *n*. EMERGENCY. SEC. 68. "It is hereby declared that an emergency exists, and therefore this act shall be in force from and after its passage."

DISTRIBUTION OF KINDS OF PAVEMENT.

The following shows the kind of pavement in use in each division of the city, December 31, 1889 :

DIVISIONS.	Wood Block. Miles.	Macadam. Miles.	Stone. Miles.	Asphalt. Block Miles.	Sheet Asphalt. Miles.	Grand Total. Miles.
North	86.89	28.09	.53	......	2.19	117.70
South	81.22	157.31	19.72	4.11	.33	262.69
West	184.93	20.58	1.08	......	1.62	208.21
Viaducts and Approaches	1.15	......	......	......	.....	1.15
Total Miles	354.19	205.98	21.33	4.11	4.14	589.75

The above table includes 11.60 miles of streets repaved during the year, which deducted from the 589.75 miles done, leaves a total of 578.15 miles of paved streets in the city.

To which are added streets improved as follows:

Graveled	40.44	miles.
Cinders	9.91	miles.
Planked	.47	miles.
	50.82	miles.
Making a grand total miles of improved streets in city	628.97	

Repaving and repairs have been made on improved streets in each division of the city as follows :

South Division	32,049	square yards.
West Division	75,039	square yards.
North Division	27,837	square yards.
Total	134,925	square yards.
Amount of repairs by corporations	20,270	square yards.
Total in the city	155,195	square yards.

STREET CLEANING.

The past year, 4,112.73 miles of improved streets were swept and cleaned, under a contract between the city and Jno. S. Cooper, for the sum of $21.99 per mile, the total cost being $90,438.91. The work was commenced on March 15, and discontinued on November 30, 1889. Of improved streets, 2,194.39 miles of the business district were swept, under contract, by Jno. S. Cooper, the city removing the sweepings; of this, 149.57 miles were swept in January and February at $7.00 per mile and 2045.32 miles after that time, at $5.49 per mile, the total cost being $12,275.79. Work in this district was commenced in January, and discontinued in December. The total amount expended under both contracts was $102,714.70.

STREET RAILWAYS.

During the year the street railway companies paved the portion of the various streets occupied by their tracks, as shown in the following table.

CORPORATIONS.	Granite Blocks, Square Yards.	Cedar Blocks, Square Yards.	Cobble-Stone, Square Yards.	Total Square Yards.
Chicago City Railway Co..........	63,109$^{\underline{33}}$	......	......	63,109$^{\underline{33}}$
North Chicago St. R. R. Co.........	......	37,166$^{\underline{21}}$	1422$^{\underline{22}}$	38,588$^{\underline{43}}$
West Chicago St. R. R. Co..........	11,443$^{\underline{10}}$	27,768$^{\underline{44}}$	......	39,211$^{\underline{54}}$
TOTALS...............	74,552$^{\underline{43}}$	64,934$^{\underline{65}}$	1422$^{\underline{22}}$	140,909$^{\underline{30}}$

The miles of streets occupied and operated by the several street railroad companies are:

North Chicago Street Railroad Co.....	31.33 miles
Chicago City Railway Co.............	41.07 miles
West Chicago Street Railroad Co......	53.56 miles
Chicago Passenger Railway Co........	13.09 miles
Total..........................	139.05 miles

SIDEWALKS.

The following table shows the various kinds of material used in the construction and repair of sidewalks during the year :

DIVISION.	MATERIAL.			Total Miles.	Sidewalks Repaired.	Total Work.
	Wood.	Stone.	Concrete.			
South....	45.92	15.34	0.62	61.88	30.24	92.12
West.....	96.55	8.23	0.74	105.52	54.00	159.52
North....	20.32	3.18	0.57	24.07	10.50	34.57
TOTALS.	162.79	26.75	1.93	191.47	94.74	286.21

The total number of miles of sidewalk laid in the city, including those constructed on highways controlled by the Park Commissioners, is as follows :

	MATERIAL.			Total Miles.
	Wood.	Stone.	Concrete.	
City....................	1,864.70	131.78	26.59	2,023.07
Boulevards to West Parks..	....	10.90	....	10.90
Boulevards to South Parks..	....	11.35	....	11.35
Boulevards to Lincoln Park	....	2.17	....	2.17
Total miles.....	1,864.70	156.20	26.59	2,047.49

Wood sidewalks replaced by stone and concrete	6.78
Making the total number of miles in the city	2,040.71

STREET LAMPS.

DIVISION.	Electric Lights.			Gas Lamps.					Oil Lamps.			Gasoline Lamps.			
	Erected in 1889.	Acquired by Annexation.	Total Number of Electric Lights.	Number of Gas Lamps in use in 1888.	Number of Gas Lamps Added in 1889.	Total Number of Gas Lamps.	Less Number Replaced.	Net Total Number of Gas Lamps.	Number of Lamps in use in 1888.	Number of Oil Lamps Discontinued in 1889.	Total Number of Oil Lamps.	Number Erected in 1889.	Less Number Replaced by Gas Lamps.	Total Number of Gasoline Lamps.	Grand Total of Lamps of All Kinds, each Division of City.
West, Incl. Jefferson and Cicero..	154	.....	154	11,328	1,486	12,809	345	12,464	4,086	3,559	527	3,855	295	3,560	16,705
South, incl. Hyde Park and Lake.	113	79	192	7,396	557	7,953	291	7,662	1,553	1,553	.....	2,822	80	2,742	10,596
North, including Lake View....	27	30	57	4,118	656	4,774	22	4,752	726	474	252	441	29	412	5,478
TOTALS...........	294	109	403	22,837	2,699	25,536	658	24,878	6,365	5,586	779	7,118	404	6,714	32,774

Total number of street lamps in the city, 32,774.

EXPENSE OF LIGHTING.

Under a special agreement entered into by the Mayor and Comptroller with the various Gas companies and approved by the City Council on November 4, 1889, the city pays the "sum of $20.00 per lamp per year for each and every lamp in full and continuous use and service the entire year, which includes all repairs, etc.," and lighting and extinguishing at the regular schedules then in force. This rate applied to all city bills from January 1, 1889, and for all annexed district bills from and after November 1, 1889. Under this agreement the following amounts were paid out for city lighting during the past year:

Total cost of lighting and maintaining gas lamps, old city	$406,269	88
Total cost of lighting and maintaining gas lamps, annexed territory*	87,576	90
For lamp posts, old city	2,476	55
For material and lighting oil lamps, old city	70,794	49
For material and lighting oil lamps, annexed territory*	22,523	40
For gasoline used by city for maintaining lamps, old city	38,125	05
For maintaining electric lights, old city	21,538	65
For maintaining electric lights, annexed territory.*	5,906	08
	655,211	00
Less from collections	662	38
Total cost of lighting the city	$654,548	62

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*The figures for annexed districts are partially estimated.

PARKS.

Under an ordinance passed by the City Council, Campbell Park was given up to the management and control of the West Park Commissioners.

The cost of maintaining the various parks under the control of this Department during the past year was as follows:

Lake Park	$2,468 62
Ellis Park	768 45
Douglas Monument Square	951 70
Aldine Square	1,028 34
Campbell Park	458 89
Union Square	78 25
Washington Square	1,944 28
Bickerdike Square	500 00
Shedds Park	240 08
Total expenditure	$8,438 61

CITY HALL BUILDING.

The amount expended in the completion of the building during the past year	$ 952 29
Total amount previously expended	1,715,437 70
Total expenditure to Dec. 31, 1889	1,716,389 99

Amount due on uncompleted contracts January 1, 1890	$144 00

The report of the Commissioner of Buildings shows that during the past year 7,590 buildings were erected, extending over an aggregate frontage of 181,126 lineal feet, or over 34 miles, at a cost of over $31,500,000, the same being distributed in the divisions of the city as follows:

DIVISION.	NUMBER BUILDINGS ERECTED.	AGGREGATE FRONTAGE IN FEET.	FRONTAGE IN MILES.	ESTIMATED VALUE.
North	494	13,922	2.64	$3,876,800 00
South........	1,082	30,004	5.69	9,691,000 00
West	3,355	75,647	14.34	11,497,700 00
Totals. Old City..	4,931	119,573	22.67	$25,065,500 00
Annexed territory, since July 15, 1889	2,659	61,553	11.63	6,450,500 00
GRAND TOTAL	7,590	181,126	34.30	$31,516,000 00

COMPARISON WITH SIX PREVIOUS YEARS.

YEAR.	NUMBER BUILDINGS ERECTED.	AGGREGATE FRONTAGE IN FEET.	FRONTAGE IN MILES.	ESTIMATED VALUE.
1883...........	4,086	85,588	16.2	$17,500,000 00
1884...........	4,169	98,782	18.6	20,689,600 00
1885...........	4,638	108,850	20.6	19,624,100 00
1886...........	4,664	112,302	21.2	21,324,400 00
1887...........	4,833	115,506	21.8	19,778,100 00
1888...........	4,958	116,419	22.0	20,360,800 00
1889	7,590	181,126	34.3	31,516,000 00
Totals for 7 yrs.	34,938	818,573	154.7	$150,793,000 00

There were moved under the supervision of the Department of Public Works, 1,190 frame and 166 brick buildings, a total of 1,356. They varied from one to four stories high, and had a frontage of 26,255 lineal feet, or nearly five miles.

PUBLIC BATHS.

In pursuance of an order passed by the City Council, October 7, 1889, the Commissioner of Public Works and the Commissioner of Health have instituted a thorough investigation of the systems of Public Baths, as established and operated in the principal cities of Europe and the United States. The reports from these cities furnish undoubted evidence of the financial success of their varied systems and the accomplishment of still grander results in making it possible for the thousands of their citizens to enjoy the luxury and healthful benefits of so great a boon at a cost within the reach of the most humble.

We desire thus publicly to acknowledge with gratitude the receipt of valuable information from those connected with the institution and management of public baths in the cities of Glasgow, Birmingham, Dublin, Nottingham, Brighton, Bolton, Greenough, Stockport, Halifax, Derby and Blackburn, England; and from the cities of Brooklyn, Boston and New York. The knowledge thus obtained from those having experience in such work is highly appreciated and will assist greatly in the construction and establishment of public baths in the city of Chicago.

In the establishment and maintenance of public baths in different cities, the cost and expense must vary in proportion to benefits derived from local surroundings. The advantage of a beautiful river or sheltered bay with mild temperature cannot enter into the arrangements or plans for such baths in this city, and we are therefore forced to the construction of thoroughly built and equipped bath houses, provided with all the modern appliances for the comfort and convenience of the multitude.

The report from the city of Boston furnishes the following:

Her first public bath was erected in 1866 and there has been appropriated annually an average of $25,000. With these amounts she has built and operates seventeen distinct institutions, commencing with a total of 443,000 baths taken the first year, increasing in numbers until it reached during the past year the enormous figure of 1,519,122. The cost of maintenance is about $1,500 per annum for each establishment.

The city of New York is reported as maintaining fifteen free public baths, the average cost of construction being about $13,000. There is a daily attendance of about 2,000 persons and the yearly cost of maintenance reaches not far from $4,500 for each bath.

The city of Brooklyn supports three public baths with an average yearly attendance of 287,000 persons, the annual expense for each bath being about $1,500.

The cost of the maintenance of baths as herein given for the various cities cannot be taken as a basis for an estimate of the cost of sustaining such an institution in this city, but such reports will enable us to form some idea of the vast multitude who avail themselves of such privileges, and thus demonstrate the importance and necessity of the immediate establishment of like institutions.

Plan No. 1, as shown in the annexed drawings, provides for a two-story brick building 25x125 feet, and

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

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ASTOR, LENOX AND
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TABLE SHOWING QUANTITY OF WATER PUMPED BY BOTH PUMPING WORKS COMBINED, EACH MONTH DURING PAST THIRTEEN YEARS.

MONTHS.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.
January	1,582,969,385	1,561,666,968	1,984,699,694	1,567,144,633	2,045,483,094	1,825,593,493	2,397,281,870	2,553,536,065	2,947,915,900	3,085,343,135	3,190,501,370	3,391,277,550	3,204,357,460
February .	1,404,949,448	1,401,548,987	1,758,754,626	1,533,195,592	1,872,130,080	1,724,637,947	2,228,122,940	2,289,600,060	2,831,812,780	2,804,360,405	2,799,906,240	3,058,015,955	3,196,086,170
March	1,543,493,780	1,566,311,019	1,929,889,148	1,675,170,272	1,950,668,691	1,926,851,744	2,295,974,480	2,416,256,615	2,927,562,145	2,958,049,370	2,968,205,420	3,179,651,565	3,387,120,965
April	1,531,896,815	1,379,902,942	1,500,367,146	1,658,718,639	1,802,701,896	1,832,587,508	2,087,973,690	2,174,058,060	2,580,725,175	2,688,679,175	2,852,128,900	2,972,742,930	3,253,544,560
May	1,628,002,813	1,421,128,064	1,639,993,231	1,781,045,267	1,807,887,027	2,000,339,237	2,140,935,205	2,305,090,420	2,676,617,045	2,821,772,995	3,076,145,285	3,023,519,750	3,458,681,170
June	1,596,655,865	1,524,233,984	1,576,121,026	1,813,621,318	1,870,242,288	2,057,911,204	2,172,518,075	2,260,858,220	2,691,576,215	3,061,290,795	3,184,500,375	3,254,447,945	3,384,349,395
July	1,733,282,814	1,903,916,563	1,785,393,119	1,917,520,346	2,148,595,588	2,161,655,202	2,343,731,680	2,462,288,300	2,937,601,005	3,188,818,675	3,523,719,415	3,451,408,335	3,640,107,945
August........	1,732,442,419	1,907,143,614	1,804,750,439	1,898,248,864	2,231,316,996	2,179,598,931	2,376,804,930	2,713,985,865	2,898,428,355	3,162,334,610	3,370,804,235	3,462,868,920	3,634,926,795
September....	1,648,279,066	1,772,067,650	1,663,023,876	1,798,031,710	2,080,423,152	2,132,913,799	2,217,346,100	2,632,908,325	2,763,810,205	3,032,052,335	3,179,949,020	3,215,309,140	3,445,038,300
October	1,623,377,776	1,751,855,733	1,735,802,358	1,772,878,722	1,923,812,991	2,096,791,910	2,226,119,370	2,528,639,070	2,800,665,610	3,024,081,770	3,088,898,135	3,202,736,800	3,455,606,350
November	1,509,481,581	1,631,523,798	1,550,482,037	1,705,207,141	1,801,799,714	2,014,994,563	2,050,391,540	2,358,616,985	2,578,944,370	2,762,816,755	2,946,818,640	2,853,354,425	3,142,864,945
December	1,512,272,884	1,742,988,910	1,626,414,281	1,881,899,401	1,796,724,362	2,197,068,346	2,204,711,210	2,590,746,480	2,816,597,100	3,103,642,865	3,017,402,520	3,056,525,255	3,301,560,350
TOTALS....	19,047,104,636	19,564,288,232	20,557,690,981	21,002,681,905	23,331,785,879	24,150,943,884	26,741,941,090	29,286,584,465	33,452,255,905	35,693,242,885	67,198,979,555	38,121,858,570	40,504,244,405

TABLE SHOWING TOTAL QUANTITY OF WATER PUMPED BY BOTH PUMPING WORKS COMBINED, TOGETHER WITH ANNUAL AND DAILY INCREASE IN QUANTITY AND RATE PER CENT.; ALSO THE GREATEST DAILY AVERAGE FOR A SINGLE MONTH FOR THE FOLLOWING YEARS.

YEAR.	Total Quantity Pumped, Gallons.	Annual Increase, Gallons.	Average Daily Quantity Pumped, Gallons.	Average Daily Increase, Gallons.	Per Cent. Of Annual Increase.	GREATEST DAILY AVERAGE.	
						Month.	Gallons.
1876	15,346,922,158	....	41,931,481	....	....	December	47,063,724
1877	19,047,104,636	3,700,182,478	52,183,892	10,252,411	24.45	July	55,912,350
1878	19,564,288,232	517,183,596	53,600,789	1,416,897	2.71	August	61,520,762
1879	20,557,690,981	993,402,749	56,322,441	2,721,652	5.07	January	64,022,571
1880	21,002,681,905	444,990,924	57,384,376	1,061,935	2.16	July	61,855,495
1881	23,331,785,879	2,329,103,974	63,922,700	6,538,324	11.09	August	71,977,967
1882	24,150,943,884	819,158,005	66,166,969	2,244,269	3.51	September	71,097,126
1883	26,741,941,090	2,590,997,206	73,265,592	7,098,623	10.72	February	79,575,819
1884	29,286,584,465	2,544,643,375	80,017,990	6,752,398	9.52	September	87,763,610
1885	33,452,255,905	4,165,571,440	91,650,190	11,632,200	14.22	February	101,136,170
1886	35,693,242,885	2,240,986,980	97,789,706	6,139.516	6.70	July	102,865,118
1887	37,198,979,555	1,505,736,670	101,937,842	4,148,136	4.24	July	113,658,692
1888	38,121,858,570	922,879,015	104,315,624	2,377,782	2.33	August	111,705,450
1889	40,504,244,405	2,382,385,835	110,895,707	6,580,083	6.30	July	117,422,880

arranged for seventy-three private bathing apartments, with a reception room, toilet room, boiler, pump and all necessary appliances complete for use.

The estimated cost of such plant will reach about $15,000 exclusive of the ground.

Plan No. 2 represents a building 50x125 feet, containing two floors; the first to be supplied with a swimming tank seventy-five feet long by twenty-four feet wide, with a depth of from three to five feet and to contain a shower attachment. The second floor is provided with twenty private bath rooms containing all modern appliances.. The entire cost of this structure, exclusive of ground, is estimated at $14,500 and provides for a substantial and creditable building.

The cost of maintenance can only be ascertained by actual experiment and is contingent largely upon the extra appliances connected with the construction of the plant. The grade of prices fixed for baths should be placed within the reach of all and not be governed in any manner by the expense of sustaining the institution.

The limited amount of money likely to be made available for the construction and equipment of public bath houses in this city, the experience and ability necessary in the successful management of the same, suggests that the undertaking of such an enterprise should be based upon an economical and judicious expenditure of the funds appropriated, which should be so distributed throughout the city as to reach the greatest number of persons which the same is designed to benefit. I therefore deem it essential, that as the first step in such enterprise, the city provide by purchase or rental, suitable quarters and supply the same with about thirty bathing apartments, with shower attachments, reception room and attendants' rooms, linen and storage closets and toilet rooms, boiler and pump, together with other attachments required for the equipment of such institutions.

The rules and regulations established for the government of such institutions must be formulated and adopted upon the best principles obtainable from those in possession of superior knowledge and experience in the management of so important a work.

A future extension of the system thus inaugurated necessarily depends upon the success of the enterprise as first established, and therefore all reasonable measures should be adopted to provide a healthful and inviting resort.

CONCLUSION.

The extent of public improvements completed during 1889 greatly exceeds that of any previous year, while the expense incurred for clerical and other classes of labor have not been proportionately increased. The reports of the various heads of bureaus will furnish your Honorable Body the classification, cost and extent of the construction and maintenance of such improvements and works as are assigned to their respective sub-departments.

The energy and ability displayed by these officers, and their successful management of the affairs of the city, entrusted to their care, entitle them to my highest commendation, and to the respect and confidence of the executive and administrative branches of the city government.

I desire most heartily to acknowledge my indebtedness to his Honor, Mayor Cregier, for invaluable services rendered through his counsel and advice in the adjustment of important transactions connected with this department.

I also desire to express to the honorable members of the City Council my appreciation of the kindness and courtesy extended to this department and to myself, in all official business relations extending through the past year.

Respectfully,

W. H. PURDY,

Commissioner.

MISCELLANEOUS DATA—1889.

Chicago covers an area of nearly one hundred and seventy-four square miles, or................	111,360 acres
Population of the city...........	1,200,000
Assessed valuation of real and personal property................	$201,104,019 00
Number of public school buildings.	107
Average number of children attending school....................	105,742
Number of teachers.............	2,597
Number of churches............	366
Number of railroads entering the city.........................	31
Number of street car companies ..	4
Number of miles of street railroad track laid	139.5
Number of police station buildings	28
Number of men employed on the force........................	1,795
Number of horses in use........	147
Number of fire engine and hook and ladder houses	72
Number of fire engines.........	61
Number of fire boats............	3
Number of hook and ladder trucks	24
Number of chemical fire engines..	18

Number of firemen employed....	871
Number of horses in use in department	368
Number of acres in public parks..	1,974.61
Number of miles of drives in parks and boulevards	59
Number of miles of walks in parks	22½
Number of miles of streets in city.	2,047.28
Miles of paved streets	578.15
Miles of sidewalks	2,042.64
Miles of main sewers	524.74
Miles of water mains	729.8
Miles of water tunnels	11.5
Number of river traffic tunnels....	2
Number of bridges over the river..	45
Number of bridges over the canal..	3
Number of viaducts over railroad tracks	35
Number of street lamps in the city.	32,774
Number of miles river frontage (both sides)	41
Number of vessels arriving during the year	9,552
Number of vessels departing during the year	9,462
Representing a tonnage of	8,821,049
Number feet of lumber received..	1,930,227,000
Number bushels of grain received..	183,563,208

Number head of hogs, cattle and sheep received	10,854,276
Bank clearings for the year	$3,379,925,188 67
Post Office receipts from stamps, cards, envelopes and money orders	$14,306,001 24
Number pieces of mail matter handled	635,193,981
Number of clerks employed	682
Number of carriers employed	611
Number of horses in use	42

APPENDIX.

HISTORY OF THE SANITARY DISTRICT OF CHICAGO AND THE DRAINAGE PROBLEM, WITH THE LAW RELATING TO THE SAME.

APPENDIX.

HISTORY OF THE SANITARY DISTRICT OF CHICAGO AND THE DRAINAGE PROBLEM, WITH THE LAW RELATING TO THE SAME.

The Chicago River has always been the receptacle for nearly the whole of the sewage of the City of Chicago. A regular system of sewerage was inaugurated in 1855, and to-day there are, within the old limits from Fullerton avenue to Thirty-ninth street, only three sewers emptying directly into the lake.

Most of the sewers existing to-day in the newly annexed territory, however, empty into the lake.

As the water supply is taken almost wholly from the lake, sewer outfalls in the lake are, of course, a constant menace to the purity of the former. But, as these outfalls are comparatively few and far between, the polluting element issues in thin threads, the influence of which is much more quickly destroyed by the natural purifying agencies active in a large body of water, than if all the threads had been united before mingling with the lake.

Such a union of many threads of pollution takes place in the river, and therefore means were sought at an early day to check and reverse the natural, though extremely sluggish, flow of the river towards the lake, and to obtain an influx of fresh lake water into the river.

This was necessary also on account of the offensive condition into which the river within the city soon fell.

The head of the Illinois and Michigan Canal, at its junction with the river at Bridgeport, as first built, was considerably above lake and river level. A pumping plant was established there by the canal authorities to help maintain the summit level when its principal gravity feeder, joining the canal 19 miles farther down at the "Sag," should become insufficient in dry weather. This plant pumped water and sewage from the river into the canal, for the benefit of the former and at the expense of the city, from 1859 to 1871.

In the latter year the "Deep Cut," authorized by the legislature of 1865, for the cleansing and purification of the Chicago River, through the "Act to provide for the completion of the Illinois and Michigan Canal upon the plan adopted by the State in 1836," was finished by the city. It was a deepening of the summit level of the canal by means of which a portion of the contents of the Chicago River passed by gravity into and down the canal. But the flow soon proved entirely insufficient and increased the nuisance in the Desplaines and Illinois valleys, while affording but scant relief to Chicago.

The North Branch especially became very offensive by continual stagnancy, and to circulate its waters the Fullerton Avenue Conduit and Pumping Works were built, and threw water from the North Branch into the lake during the period from 1876 to 1885. The source of the water supply was then thought to be protected from pollution through the Fullerton Avenue outlet, having been removed to a distance of two (2) miles from shore, and the canal had more than enough to do to take care of the Main River and South Branch.

In the meantime the State, by a joint resolution of the Legislature of 1881, required the City of Chicago to erect pumping works at Bridgeport, of a capacity of 60,000 cubic feet per minute, for the purpose of pumping the contents of the Chicago River into the canal, and increasing the flow in the latter.

And when this plant, which began operations in the spring of 1884, had attained its full efficiency in the fall of 1885, the machinery at Fullerton Avenue was reversed, and it now pumps fresh water from the lake into the North Branch, thus diluting the contents of the latter, and furnishing the head needed for a flow toward the Bridgeport pumps.

Under ordinary conditions the action of the Bridgeport pumps, which throw on the average 40,000 cubic feet per minute, causes a perceptible current away from the lake in the principal branches of the river, and keeps them in tolerable condition, as then fresh lake water is mingling continuously with the polluted waters at the river mouth and at Fullerton Avenue. The current toward the pumps, however, is often neutralized by the effect on the river of the fluctuations of the lake level, which are at times very large and rapid.

The South Fork with its two arms, the Stock Yards Slip, and the reach crossing Ashland Avenue, is not benefited by the pumps to any extent, because fresh sewage only takes the place of what old sewage is contributed by this portion of the river to the Bridgeport pumps. As a consequence, the condition of the South Fork and its arms is extremely bad, although it has not yet been shown to affect the health of the residents of the vicinity very much.

Thus it is seen that in dry weather the present conditions and arrangements work in unison, and with some degree of efficiency, towards the accomplishment of both these purposes: the protection of the water supply and the abatement of the river nuisance.

It is in times of high water, however, that the present conditions serve the latter purpose to excess while entirely defeating the former one.

The western continuation of the West Fork, the Ogden-Wentworth Ditch, is in touch with the Desplaines River through the Ogden Dam at the point where the river runs close to an extremely low divide;

the eastern extremity of the West Fork joins the South Branch in close proximity to the head of the Illinois and Michigan Canal and the Bridgeport pumps. The volume of the flow of the Desplaines River, taken near the Ogden Dam, ranges from practically nothing in dry weather, with the flow line less than eight feet above lowest lake level or city datum, to more than 600,000 cubic feet per minute during floods, with the flow line more than fifteen feet above city datum, or more than three feet above the crest of the Ogden Dam. This flood volume exceeds the normal capacity proposed for the final main drainage outlet and ship canal, and is equal to more than ten times the utmost capacity of the Bridgeport pumps. Out of this total there escaped, in the instance of the spring flood of 1887, into the West Fork by way of the Ogden Dam a portion amounting to 420,000 cubic feet per minute, or seven times the utmost capacity of the Bridgeport pumps. Such volumes of Desplaines water arrive in front of the pumps under high velocities and intercept and push back the flow of the South Branch. Therefore the pumps are stopped on such occasions, when they would only pump the Desplaines overflow into the canal which is itself severely taxed by its own storm waters.

When from any cause too much of the middle stage of the Desplaines River comes through the Ogden Dam, a milder form of the flood conditions obtains, and the Bridgeport pumps draw partly Desplaines water, to the injury of the sanitary condition of the South Branch.

The flood waters of the Desplaines and West Fork turn the current of the South Branch toward the lake, and after having received an addition of 20 or 30 per cent. from the North Branch debouch into the lake, bearing with them large amounts of live sewage and of sediment, and leaving the river behind comparatively pure.

The mass does not readily mingle with the waters of the lake, but seems to adhere to the river mouth in an immense elastic body capable of being stretched out for long distances by the wind and the lake currents created by it. If these chance to be in a direction from the river mouth toward the water works crib two miles from shore, there is constant danger of a pollution of the water supply, and such pollution has actually taken place several times.

This state of affairs lasts until diffusion, aeration, oxidation and the Bridgeport pumps have removed or destroyed the impurities in the lake water.

Another very bad effect of a flood in the river is this, that the outfalls of the low grade combined sewers are choked off, and the sewer contents backed up, flooding and damaging the lower portions of houses and sending sewer gas through the plumbing into the rooms.

There is, besides, the damage and danger from inundations of the low-lying districts along Western Avenue, north of the West Fork; and there is additional danger arising from ice gorges during the spring floods. During the spring flood of 1887, the citizens were kept in a state of alarm on account of the stubborn resistance which ice gorges in the North Branch, as well as in the West Fork, opposed to explosives and the attacks of the powerful fire-boat "Geyser."

No wonder, then, that public opinion strongly demanded better provisions to dispose of the sewage and to protect the water supply. The agitation to this end found expression in the report of a sub-committee of the Citizens' Association, which in September, 1885, recommended a plan to keep the flood-waters of the Desplaines and North Branch out of the Chicago River, and to construct a large gravity channel as an outlet for the latter into the Illinois River, thus connecting Lake Michigan and the Mississippi River. The general sentiment was voiced by the City Council in its resolution of January 27, 1886, authorizing the Mayor to appoint a Drainage and Water Supply Commission.

This Commission began work in March, 1886, and disbanded in November, 1887. It submitted a preliminary general report in January, 1887, a special report on the diversion of the Desplaines and North Branch floods, in conjunction with certain works intended to afford temporary relief, on July 1, 1887, and a last communication, addressed to the Mayor, on November 5, 1887, stating that a final report could not be submitted at the stage of the work then gained, and enumerating the tasks which yet remained to be done toward the fulfillment of the objects for which the Commission had been created.

The Drainage and Water Supply Commission considered three methods of getting rid of the Chicago sewage; firstly, a discharge into Lake Michigan; secondly, a disposal on land; thirdly, a discharge into the Desplaines River.

The Commission, in corroboration of the conclusions of the Citizens' Association Committee of 1885, recommended the discharge of the sewage into the Desplaines River near Lockport, through a wide and deep gravity channel with a current of two miles per hour, and a capacity of 600,000 cubic feet per minute, a capacity which it believed to be ample for the needs of a future population of 2,500,000 people. The Commission assumed that the entire populated district near the lake, from the north line of Evanston to the south line of Hyde Park, would form the area to be covered by this future population. The Commission also recommended the diversion of the flood waters of the Desplaines, North Branch and Calumet Rivers into the lake, as an integral part of the Desplaines scheme.

The Commission's principal reasons for the preference given to the Desplaines scheme were these three: *Firstly.* It would be the cheapest. The ultimate expenditure was placed at $25,500,000, sixty-nine per cent. of that of lake disposal, and forty-four per cent. of that of land disposal; the annual expense (maintenance and interest on investment) was placed at $1,300,000, fifty-four per cent. of that of lake disposal, and forty-three per cent. of that of land disposal. *Secondly.* The drainage channel would form part of a magnificent waterway between Chicago and the Mississippi river, with salable dockage fronts at its upper end. *Thirdly.* That channel would create an immense water power below Lockport.

The State Legislature, during its session of 1887, passed a bill empowering the city of Chicago to divert the floodwaters of the Desplaines and North Branch and to construct a dam across Mud Lake, for the purpose of excluding Desplaines River water from the Chicago basin. ("An act to organize the City of Chicago into a drainage district and to define the powers and duties of the corporate authorities thereof. Approved June 6, 1887. In force July 1, 1887.")

In the same session a bill, providing for permanent relief on the lines laid out in the report of the Chicago Drainage and Water Supply Commission, failed to be passed, but much testimony was taken by the House on the subject, and a commission of five, with the

Mayor of Chicago as chairman *ex officio*, was appointed to examine further into the subject and to report to the next legislature.

The legislature of 1889, then, passed the "Act to create sanitary districts and to remove obstructions in the Desplaines and Illinois Rivers. Approved May 29, 1889. In force July 1, 1889."

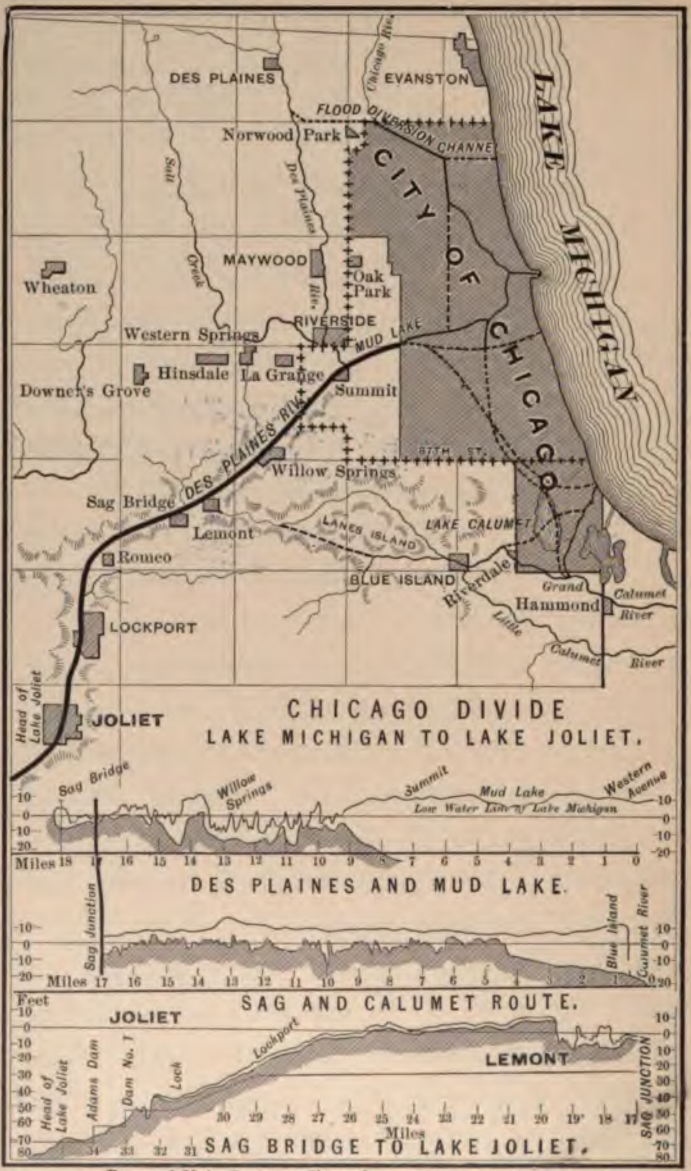
A copy of this law, which provides for a permanent solution of the Chicago drainage problem by means of a discharge into the Desplaines River, as recommended by the Chicago Drainage and Water Supply Commission, is printed herewith.

The first steps in the application of this law to the "Chicago Sanitary District" have been taken.

At the November election, 1889, the people of a district, the boundaries of which had been defined in the manner prescribed by the law and as shown on the appended map, declared in favor of organizing as a Sanitary District. The trustees were elected on December 12, 1889; they effected an organization and elected officers on February 1, 1890, and afterwards took some action in the matter of raising funds, out of which action, it is expected, will grow litigation that will finally evoke a decision of the Supreme Court of the State as to the constitutionality of the Sanitary District Act. It is not likely that much money will be expended by the trustees for work on behalf of the Chicago Sanitary District until such decision has been rendered, and it is hoped that the latter may be reached during the next March term. In the meantime the city authorities are perfecting plans for temporary relief.

It is proposed to increase the amount of water pumped from the Chicago River into the canal, to procure circulation for the South Fork and its arms, and to have precipitating basins constructed, by means of which a great portion of the noxious refuse now running into the river from industrial establishments, notably the Union Stock Yards, several distilleries and gas works, may be kept out of the river.

Map of Chicago Sanitary District.



▬▬▬ Proposed Main Drainage Channel.
— — — — ...... Possible Auxiliary Channels.
++++++++++ .. Boundaries of Sanitary District.

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CHICAGO SANITARY DISTRICT LAW.

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AN ACT to create sanitary districts and to remove obstructions in the Desplaines and Illinois rivers. Approved May 29, 1889. In force July 1, 1889.

186. INCORPORATING SANITARY DISTRICT — QUESTION, HOW SUBMITTED—COMMISSIONERS.] § 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That whenever any area of contiguous territory within the limits of a single county shall contain two or more incorporated cities, towns or villages, and shall be so situated that the maintenance of a common outlet for the drainage thereof will conduce to the preservation of the public health, the same may be incorporated as a sanitary district under this act, in the manner following: Any 5,000 legal voters resident within the limits of such proposed sanitary district may petition the county judge of the county in which they reside to cause the question to be submitted to the legal voters of such proposed district whether they will organize as a sanitary district under this act. Such petition shall be addressed to the county judge, and shall contain a definite description of the territory intended to be embraced in such district, and the name of such proposed sanitary district: *Provided, however,* that no territory shall be included in any municipal corporation formed hereunder which is not situated within the limits of a city, incorporated town or village, or within three miles thereof, and no territory shall be included within more than one sanitary district under

this act. Upon the filing of such petition in the office of the county clerk of the county in which such territory is situated it shall be the duty of the county judge to call to his assistance two judges of the Circuit Court and such judges shall constitute a board of commissioners which shall have power and authority to consider the boundaries of any such proposed sanitary district, whether the same shall be described in such petition or otherwise. Notice shall be given by such county judge of the time and place where such commissioners will meet, by a publication inserted in one or more daily papers published in such county, at least twenty days prior to such meeting. At such meeting the county judge shall preside, and all persons in such proposed sanitary district shall have an opportunity to be heard touching the location and boundary of such proposed district and make suggestions regarding the same, and such commissioners, after hearing statements, evidences and suggestions, shall fix and determine the limits and boundaries of such proposed district, and for that purpose and to that extent, may alter and amend such petition. After such determination by said commissioners, or a majority of them, the county judge shall submit to the legal voters of the proposed sanitary district the question of the organization and establishment of the proposed sanitary district, as determined by said commissioners, at an election to be held on the first Tuesday after the first Monday in November thence next ensuing. Notice whereof shall be given by said commissioners, at least twenty days prior thereto, by publication in one or more daily papers published within such proposed sanitary district, such notice to specify briefly the purpose of such election, with a description of such proposed district. Each legal voter resident within such proposed sanitary district shall have the right to cast a ballot at such election, with the words thereon, "For Sanitary District," or, "Against Sanitary District." The ballots so cast shall be received, returned and canvassed in the same manner and by the same officers as is provided by law in the case of ballots cast for county officers. The county judge shall cause a statement of the result of such election to be spread upon the records of the County Court. If a majority of the votes cast upon the question of the incorporation of the proposed sanitary district shall be in favor of the proposed sanitary district, such proposed district shall thenceforth be deemed an organized sanitary district under this act.

187. JUDICIAL NOTICE OF DISTRICT — ELECTION — COUNTY JUDGE.] § 2. All courts in this State shall take judicial notice of the existence of all sanitary districts organized under this act. Upon the organization of any sanitary district under this act the county judge shall call an election to elect officers and cause notice thereof to be posted or published, and perform all other acts in reference to such election in like mannner as nearly as may be, as he is required to perform in reference to the election of officers in newly organized cities under the provisions of an act entitled "An act to provide for the incorporation of cities and villages," approved April 10, 1872.

188. TRUSTEES—ELECTION AND TERMS OF.] § 3. In each sanitary district organized under this act, there shall be elected nine trustees who shall hold their offices for five years, and until their successors are elected and qualified, except the term of office of the first trustees elected, shall be until five years after the first Monday in December after their election. The election of Trustees, after the first, shall be on the Tuesday next after the first Monday in November in every fifth year. In all elections for trustees each qualified voter may vote for as many candidates as there are trustees to be elected, or he may distribute his vote among not less than five-ninths of the candidates to be elected, giving to each of the candidates among whom he distributes the same, the same number of votes or fractional parts of votes. The trustees shall choose one of their number president, and such sanitary district shall from the time of the first election held by it under this act be construed in law and equity a body corporate and politic and by the name and style of the sanitary district of.........., and by such name and style may sue and be sued, contract and be contracted with, acquire and hold real estate and personal property necessary for corporate purposes, and adopt a common seal and alter the same at pleasure.

189. TRUSTEES CONSTITUTE A BOARD—DUTIES AND POWERS OF.] § 4. The trustees elected in pursuance of the foregoing provisions of this act shall constitute a board of trustees for the district by which they are elected, which board of trustees is hereby declared to be the corporate authorities of such sanitary district, and shall exercise all the powers and manage and control all the affairs and property of such district. Said board of trustees shall

have the right to elect a clerk, treasurer, chief engineer and attorney for such municipality, who shall hold their respective offices during the pleasure of the board, and who shall give such bond as may be required by said board. Said board may prescribe the duties and fix the compensation of all the officers and employes of said sanitary district: *Provided, however,* that the salary of the president of said board of trustees shall in no case exceed the sum of four thousand dollars per annum; and the salary of the other members of said board shall not exceed three thousand dollars per annum. *And provided further,* that the amount received by any attorney shall not exceed the sum of five thousand dollars ($5,000) per annum. Said board of trustees shall have full power to pass all necessary ordinances, rules and regulations for the proper management and conduct of the business of said board of trustees and of said corporation, and for carrying into effect the objects for which such sanitary district is formed.

190. ORDINANCES MAKING APPROPRIATION—PUBLICATION OF.] § 5. All ordinances making any appropriations shall, within one month after they are passed, be published at least once in a newspaper published in such district, or if no such newspaper of general circulation is published therein, by posting copies of the same in three public places in the district; and no such ordinance shall take effect until ten days after it is so published, and all other ordinances, orders and resolutions, shall take effect from and after their passage unless otherwise provided therein.

191. ORDINANCES AND RESOLUTIONS—EVIDENCE.] § 6. All ordinances, orders and resolutions, and the date of publication thereof, may be proven by the certificate of the clerk, under the seal of the corporation, and when printed in book or pamphlet form, and purporting to be published by the board of trustees, and such book or pamphlet shall be received as evidence of the passage and legal publication of such ordinances, orders and resolutions, as of the dates mentioned in such book or pamphlet, in all courts and places without further proof.

192. BOARD OF TRUSTEES—POWERS OF.] § 7. The board of trustees of any sanitary district organized under this act shall have power to provide for the drainage of such district by laying out, establishing, constructing and maintaining one or more main

channels, drains, ditches and outlets for carrying off and disposing of the drainage (including the sewage) of such district, together with such adjuncts and additions thereto as may be necessary or proper to cause such channels or outlets to accomplish the end for which they are designed in a satisfactory manner; also to make and establish docks adjacent to any navigable channel made under the provisions hereof for drainage purposes, and to lease, manage and control such docks, and also to control and dispose of any water-power which may be incidentally created in the construction and use of said channels or outlets, but in no case shall said board have any power to control water after it passes beyond its channel, waterways, races or structures into a river or natural waterway or channel, or water-power or docks situated on such river or natural waterway or channel: *Provided, however*, nothing in this act shall be construed to abridge or prevent the State from hereafter requiring a portion of the funds derived from such water-power, dockage or wharfage to be paid into the State Treasury to be used for State purposes. Such channels or outlets may extend outside of the territory included within such sanitary district and the rights and powers of said board of trustees over the portion of such channel or outlet lying outside of such district shall be the same as those vested in said board over that portion of such channels or outlets within the said district.

193. MAY PURCHASE AND SELL REAL ESTATE, ETC.] § 8. Such sanitary district may acquire by purchase, condemnation, or otherwise, any and all real and personal property, right of way and privilege, either within or without its corporate limits that may be required for its corporate purposes: *Provided*, all moneys for the purchase and condemnation of any property shall be paid before possession is taken, or any work done on the premises damaged by the construction of such channel or outlet, and in case of an appeal from the county court taken by either party whereby the amount of damages is not finally determined, the amount of judgment in said court shall be deposited at some bank to be designated by the judge thereof subject to the payment of such damages on orders signed by such county judge, whenever the amount of damages is finally determined; and when

not longer required for such purposes, to sell, convey, vacate and release the same, subject to the reservation contained in section 7, relating to water-powers and docks.

194. MAY BORROW MONEY—LIMITATION.] § 9. The corporation may borrow money for corporate purposes and may issue bonds therefor, but shall not become indebted, in any manner, or for any purpose, to an amount in the aggregate to exceed five per centum on the valuation of taxable property therein, to be ascertained by the last assessment for State and county taxes previous to the incurring of such indebtedness: *Provided, however*, that said five per centum shall not exceed the sum of fifteen million dollars ($15,000,000).

195. TO PROVIDE FOR DIRECT ANNUAL TAX—NET EARNINGS.] § 10. At the time or before incurring any indebtedness, the board of trustees shall provide for the collection of a direct annual tax sufficient to pay the interest on such debt as it falls due, and also to pay and discharge the principal thereof as the same shall fall due, and at least within twenty years from the time of contracting the same: *Provided*, that the net earnings from water-power and docks may be appropriated and applied to the purpose of paying the interest or principal of such indebtedness, or both, and to the extent that they will suffice, the direct tax may be remitted.

196. CONTRACTS—HOW LET.] § 11. All contracts for work to be done by such municipality, the expense of which will exceed five hundred dollars, shall be let to the lowest responsible bidder therefor upon not less than sixty days' public notice of the terms and conditions upon which the contract is to be let having been given by publication in a newspaper of general circulation published in said district, and the said board shall have the power and authority to reject any and all bids, and re-advertise: *Provided*, no person shall be employed on said work unless he be a citizen of the United States, or has in good faith declared his intentions to become such citizen. In all cases where an alien after filing his declaration of his intention to become a citizen of the United States shall for the space of three months after he could lawfully do so, fail to take out his final papers and complete his citizenship, such failure shall be *prima facie* evidence that his declaration of intentions was not made in good faith. And that eight hours shall constitute a day's work.

197. TRUSTEES MAY LEVY AND COLLECT TAXES, ETC.] § 12. The board of trustees may levy and collect taxes for corporate purposes upon property within the territorial limits of such sanitary district, the aggregate amount of which in any one year shall not exceed one half of one per centum of the value of the taxable property within the corporate limits, as the same shall be assessed and equalized for State and county taxes of the year in which the levy is made. Said board shall cause the amount required to be raised by taxation in each year to be certified by the county clerk, on or before the second Tuesday in August, as provided in section one hundred and twenty-two of the general revenue law. All taxes so levied and certified shall be collected and enforced in the same manner and by the same officers as State and county taxes, and shall be paid over by the officer collecting the same to the treasurer of the sanitary district, in the manner and at the time provided by the general revenue law.

198. EXPENSES OF IMPROVEMENT—SPECIAL ASSESSMENTS—GENERAL TAX.] § 13. The board of trustees shall have power to defray the expenses of any improvement made by it in the execution of the powers hereby granted to such incorporation, by special assessment or by general taxation, or partly by special assessment and partly by general taxation, as they shall by ordinance prescribe. It shall constitute no objection to any special assessment, that the improvement for which the same is levied is partly outside the limits of such incorporation, but no special assessment shall be made upon property situated outside of such sanitary district, and in no case shall any property be assessed for more than it will be benefited by the improvement for which the assessment is levied. The proceedings for making, levying, collecting and enforcing of any special assessment levied hereunder, shall be the same as nearly as may be as is prescribed by article nine of an act entitled "An act to provide for the incorporation of cities and villages," approved April 10, 1872. Whenever in said act the words "city council" are used, the same shall apply to the board of trustees constituted by this act, and the words applying to the city or its officers in that article shall be held to apply to the corporation hereby created and to its officers.

199. ASSESSMENT—INSTALLMENTS—INTEREST.] § 14. When any assessment is made under this act, the ordinance authorizing such assessment may provide that it be divided into equal annual installments, not more than twenty in number, and fix the amount and time of payment of each installment, and that the installment shall bear interest at a rate not exceeding six per cent. per annum, payable annually, from the date fixed in said ordinance, and the several installments and interests thereon may be collected and enforced, as they shall become due, in the manner provided for the enforcement of assessments under said Article 9. No more of any assessment need be returned or certified to the county collector than will show the amount due and unpaid at the time of such return, and no sale of any parcel of land for any installment of an assessment shall discharge the premises from any subsequent installment of the same or any other assessment. Any one or all of the installments may be paid any time after the assessment is confirmed, with accrued interest, if any, to the date of payment.

200. WHEN ASSESSMENTS PAYABLE BY INSTALLMENTS—BONDS MAY BE ISSUED.] § 15. Where any assessment is made payable in installments the board of trustees may issue bonds or certificates not exceeding in amount eighty per centum of the unpaid portion of such assessment at the date of the issue thereof, payable only out of such assessment, and bearing interest at a rate not exceeding the rate of interest upon the installments of such assessments. The board of trustees shall have the right to call in and pay off said bonds or certificates as fast as there is money received into the treasury from the assessment against which the same are issued, and all moneys received upon such assessment shall be applied to the payment of said certificates or bonds until they are fully satisfied.

201. PRIVATE PROPERTY—HOW TAKEN FOR IMPROVEMENT.] § 16. Whenever the board of trustees of any sanitary district shall pass an ordinance for the making of any improvement which such district is authorized to make, the making of which will require that private property should be taken or damaged, such district may cause compensation therefor to be ascertained, and condemn and acquire possession thereof in the same manner as nearly as may be as is provided in an act entitled, "An act to

provide for the exercise of the right of eminent domain," approved April 10, 1872: *Provided, however*, that proceedings to ascertain the compensation to be paid for taking or damaging private property shall in all cases, be instituted in the county where the property sought to be taken or damaged is situated: *And provided*, that all damages to property whether determined by agreement or by final judgment of court shall be paid out of the annual district tax, prior to the payment of any other debt or obligation.

202. MAY ACQUIRE RIGHT OF WAY.] § 17. When it shall be necessary in making any improvements which any district is authorized by this act to make, to enter upon any public property or property held for public use, such district shall have the power so to do and may acquire the necessary right of way over such property held for public use in the same manner as is above provided for acquiring private property, and may enter upon, use, widen, deepen and improve any navigable or other waters, waterways, canal or lake: *Provided*, the public use thereof shall not be unnecessarily interrupted or interfered with, and that the same shall be restored to its former usefulness as soon as practicable: *Provided, however*, that no such district shall occupy any portion of the Illinois and Michigan canal outside of the limits of the county in which such district is situated for the site of any such improvements, except to cross the same, and then only in such a way as not to impair the usefulness of said canal, or to the injury of the right of the State therein, and only under the direction and supervision of the canal commissioners: *And, provided further*, that no district shall be required to make any compensation for the use of so much of said canal as lies within the limits of the county in which said district is situated except for transportation purposes.

203. SPECIAL ASSESSMENT—DAMAGE TO PROPERTY, AND COST OF ACQUIRING.] § 18. In making any special assessment for any improvement which requires the taking or damaging of property, the cost of acquiring the right to damage or take such property may be estimated and included in the assessment as a part of the cost of making such improvement.

204. LIABILITY OF SANITARY DISTRICT FOR DAMAGES.] § 19. Every sanitary district shall be liable for all damages to real

estate within or without such district which shall be overflowed or otherwise damaged by reason of the construction, enlargement or use of any channel, ditch drain, outlet or other improvement under the provisions of this act; and actions to recover such damages may be brought in the county where such real estate is situate, or in the county where such sanitary district is located, at the option of the party claiming to be injured. And in case judgment is rendered against such district for damage the plaintiff shall also recover his reasonable attorney's fees, to be taxed as costs of suit: *Provided, however,* it shall appear on the trial that the plaintiff notified the trustees of such district, in writing, at least 60 days before suit was commenced by leaving a copy of such notice with some one of the trustees of such district stating that he claims damages to the amount of......dollars, by reason of (here insert the cause of damage) and intends to sue for the same: *And provided further,* that the amount recovered shall be larger than the amount offered by said trustees (if anything) as a compromise for damages sustained.

205. CAPACITY OF CHANNEL OR OUTLET.] § 20. Any channel or outlet constructed under the provisions of this act, which shall cause the discharge of sewage into or through any river or stream of water beyond or without the limits of the district constructing the same, shall be of sufficient size or capacity to produce a continuous flow of water of at least two hundred cubic feet per minute for each one thousand of the population of the district drained thereby, and the same shall be kept and maintained of such size and in such condition that the water thereof shall be neither offensive or injurious to the health of any of the people of this State, and before any sewage shall be discharged into such channel or outlet, all garbage, dead animals, and parts thereof and other solids shall be taken therefrom.

206. SANITARY DISTRICT—FAILURE TO COMPLY WITH ACT—REMEDY—PENALTY.] § 21. In case any sanitary district in this State formed under the provisions of this act shall introduce sewage into any river or stream of water, or natural or artificial watercourse, beyond or without the limits of such district, without conforming to the provisions of this act, or having introduced such sewage into such watercourse, shall fail to comply with any of the provisions of this act, an action to enforce compliance

shall be brought by the Attorney General of this State in the courts of any county wherein such watercourse is situate, or he may authorize the State Attorney or any such county to commence and prosecute such action in any such county: *Provided*, that nothing in this section contained shall be construed to prevent the prosecution of any action or proceeding by individuals or bodies corporate or politic against such district.

207. ACT—HOW CONSTRUED.] § 22. Nothing in this act contained shall be so construed as to constitute a contract or grant between the State of Illinois and any sanitary district formed under its provisions, or to prevent, debar or deprive the State of Illinois from, at any time in the future, altering, amending or repealing this act, or imposing any conditions, restrictions or requirements other, different or additional to any herein contained upon any sanitary district which may be formed hereunder.

208. CHANNEL—HOW TO BE CONSTRUCTED.] § 23. If any channel is constructed under the provisions hereof by means of which any of the waters of Lake Michigan shall be caused to pass into the Desplaines or Illinois river, such channel shall be constructed of sufficient size and capacity to produce and maintain at all times a continuous flow of not less than 300,000 cubic feet of water per minute, and to be of a depth of not less than fourteen feet, and a current not exceeding three miles per hour, and if any portion of any such channel shall be cut through a territory with a rocky stratum where such rocky stratum is above a grade sufficient to produce a depth of water from Lake Michigan of not less than eighteen feet, such portion of said channel shall have double the flowing capacity above provided for, and a width of not less than one hundred and sixty feet at the bottom capable of producing a depth of not less than eighteen feet of water. If the population of the district draining into such channel shall at any time exceed 1,500,000, such channel shall be made and kept of such size and in such condition that it will produce and maintain at all times a continuous flow of not less than 20,000 cubic feet of water per minute for each 100,000 of the population of such district, at a current of not more than three miles per hour, and if at any time the general government shall improve the Desplaines or Illinois rivers, so that the same shall be capable of receiving a flow of 600,000 cubic feet of water per

minute, or more, from said channel, and shall provide for the payment of all damages which any extra flow above 300,000 cubic feet of water per minute from such channel may cause to private property so as to save harmless the said district from all liability therefrom, then such sanitary district shall within one year thereafter, enlarge the entire channel leading into said Desplaines or Illinois rivers from said district to a sufficient size and capacity to produce and maintain a continuous flow throughout the same of not less than 600,000 cubic feet of water per minute, with a current of not more than three miles per hour, and such channel shall be constructed upon such grade as to be capable of producing a depth of water not less than eighteen feet throughout said channel, and shall have a width of not less than one hundred and sixty feet at the bottom, in case a channel is constructed in the Desplaines river as contemplated in this section it shall be carried down the slope between Lockport and Joliet to the pool commonly known as the upper basin of sufficient width and depth to carry off the water the channel shall bring down from above. The district constructing a channel to carry water from Lake Michigan of any amount authorized by this act, may correct, modify and remove obstructions in the Desplaines and Illinois rivers wherever it shall be necessary so to do to prevent overflow or damage along said river, and shall remove the dams at Henry and Copperas Creek in the Illinois river, before any water shall be turned into the said channel. And the canal commissioners, if they shall find at any time that an additional supply of water has been added to either of said rivers, by any drainage district or districts, to maintain a depth of not less than six feet from any dam owned by the State, to and into the first lock of the Illinois and Michigan Canal at La Salle, without the aid of any such dam, at low water, then it shall be the duty of said canal commissioners to cause such dam or dams to be removed. This act shall not be construed to authorize the injury or destruction of existing water power rights.

209. CHANNEL, WHEN COMPLETED—CONTROL OF.] § 24. When such channel shall be completed, and the water turned therein, to the amount of three hundred thousand cubic feet of water per minute, the same is hereby declared a navigable stream,

and whenever the general government shall improve the Desplaines and Illinois rivers for navigation, to connect with this channel, said general government shall have full control over the same for navigation purposes, but not to interfere with its control for sanitary or drainage purposes.

210. MAY PERMIT TERRITORIES OUTSIDE TO DRAIN, ETC.] § 25. Any district formed hereunder shall have the right to permit territory lying outside its limits and within the same county to drain into and use any channel or drain made by it, upon such payments, terms and conditions as may be mutually agreed upon, and any district formed hereunder is hereby given full power and authority to contract for the right to use any drain or channel which may be made by any other sanitary district, upon such terms as may be mutually agreed upon, and to raise the money called for by any such contract in the same way and to the same extent as such district is authorized to raise money for any other corporate purposes: *Provided*, that where the united flow of any sanitary districts thus co-operating shall pass into any channel constructed within the limits of the county wherein such districts are located, and which passes into the Desplaines or Illinois rivers, such united flow shall in no case and at no time be less than 20,000 cubic feet of water per minute for each one hundred thousand of the aggregate of the population of the districts co-operating: *Provided*, nothing in this act shall in any wise be so construed as to diminish, impair or remove any right or rights of any city, village, township or corporation, body politic or individual situated on the Desplaines or Illinois rivers or their tributaries and within the valleys of the same to use the channel for drainage or otherwise not inconsistent with the rights of the district constructing the same as expressed in this act.

211. WHEN CITY OR VILLAGE OWNS WATERWORKS, ETC.] § 26. Whenever in any such sanitary district there shall be a city, incorporated town or village, which owns a system of waterworks and supplies water from a lake or other source which will be saved and preserved from sewage pollution, by the construction of the main channel, drain, ditch or outlet herein provided for, and the turning of the sewage of such city or district therein, and there shall be in such sanitary district any territory bordering on any such city, incorporated town or village within the limits of

another city, incorporated town or village, which does not own any system of waterworks, at the time of the creation of such sanitary district, then upon application by the corporate authorities of such latter named city, incorporated town or village the corporate authorities of such city, incorporated town or village having such system of waterworks shall furnish water at the boundary line between such municipalities by means of its waterworks to the corporate authorities asking for the same in such quantities as may be required to supply consumers within said territory, at no greater price or charge than it charges and collects of consumers, within its limits for water furnished through meters in like large quantities.

212. WHEN CHANNEL CONSTRUCTED—COMMISSIONERS TO BE APPOINTED TO INSPECT ITS WORK.] § 27. If any channel shall be constructed under the provisions of section 23 of this act, it shall be the duty of the trustees of such district, where such channel shall be completed, and before any water or sewage shall be admitted therein, to duly notify, in writing, the Governor of this State of such fact; and the Governor shall thereupon appoint three discreet persons as commissioners, one of whom shall be a resident of the city of Joliet, or between said city and the city of La Salle, and one a resident of the city of La Salle, or between said city and the city of Peoria, and one a resident of the city of Peoria, or between said city and the mouth of the Illinois river, to inspect said work. The said commissioners shall, within ten days after such appointment meet at the city of Chicago, and shall appoint a competent civil engineer, and they may employ such other assistance as they may require to expeditiously perform their duties. The said commission shall take as their datum line for the survey the datum established by the Illinois and Michigan Canal Trustees in 1847, and shall make such examination and surveys of Chicago river and of the channel or channels authorized by this act as shall enable them to ascertain whether said channel is of the character and capacity required by this act. And in case they shall find the work in all respects in accordance with the provisions of section 23, of this act, they shall so certify to the Governor, who shall thereupon authorize the water and sewage to be let into said channel. But in case said commissioners shall find said channel is not constructed in accordance with the provisions of this act, it shall

be their duty to file in any court of competent jurisdiction, on the chancery side thereof, in their name as such commissioners, a bill against said corporation, which bill shall set forth wherein said work is deficient and fails to comply with the provisions of this act; and said court shall thereupon issue an injunction without bond against said defendant, enjoining and restraining it from admitting water or sewage into said channel until the final order of the court. And in case said court, upon hearing, shall determine that said channel is not constructed in accordance with the provisions of this act, said injunction shall be continued until the provisions of this act shall have been fully complied with.

Such commissioners and engineer shall receive for their services ten dollars per day each, and their reasonable expenses and outlays for the time by them necessarily employed in the discharge of their duties, which shall be paid to them from the State Treasury; and the said sanitary district shall reimburse the State for all expenses and disbursements on account of said commission.

If any channel is constructed under the provisions of this act which shall discharge the sewage of a population of more than 300,000 into or through any river beyond or without the limits of the district constructing it, the same shall be constructed in accordance with the provisions of section 23 of this act, and if any such channel receives its supply of water from any river or channel connecting with Lake Michigan it shall be construed as receiving its supply of waters from Lake Michigan.

REPORT

OF THE

Bureau of Engineering

CITY OF CHICAGO.

ENGINEER'S REPORT.

CHICAGO, February 19, 1890.

W. H. PURDY, ESQ.,
Commissioner of Public Works.

DEAR SIR:—I present herewith the Fourteenth Annual Report of the Bureau of Engineering, under the Department of Public Works, being for the year 1889.

WATER SUPPLY.

The total quantity of water delivered to the city from the North and West pumping works, during the year, is 40,504,244,405 gallons, a daily average of 110,895,707 gallons, or about 6.30 per cent. more than the average for the year 1888. During the month of July the average daily quantity pumped was 117,422,830 gallons, being the greatest of the year. The lowest was in January, when the average was 103,366,370 gallons per day.

During the past year the records of the North pumping works for 1887 and 1888 have been written up, and we are enabled to give continuous reports of the total work done.

The "'67" engine has been overhauled and changed back to a double cylinder, low pressure engine, with good results. (See report of experts, of tests made before and after the change was made.)

During the first three months of the year 1889, an excessive quantity of coal was charged at the West pumping works, to heating building and pipe-yard offices, amounting to 17,200 pounds per day. The amount at present used is estimated at 2,000 pounds per day for the same purpose.

In giving the reports of operations in the annexed territory, we are unable to make them as full as those relating to the old city, for the reason that the records of those portions, in many instances, are lacking in important information; matters are now, however, arranged on the same basis throughout the entire city.

New main supply pipes, of large diameter, should be laid as soon as possible in the annexed territory, both North and South, as the small size of the present ones causes an undue loss of head from friction at the more distant points of supply.

The arrangement of the mains is in many cases very faulty, four-inch pipes supplying others of six inches diameter, and those again supplying four-inch pipes. This will eventually have to be changed; but it will necessarily take some time to do it, and in the meantime many people will have a great lack of pressure in their houses.

The amount of water reported as pumped in the annexed territory is as follows:

Hyde Park District	3,353,064,395 gallons.
Lake District	4,789,713,892 gallons.
Lake View District	2,262,757,424 gallons.
Total for annexed territory	10,355,535,711 gallons.

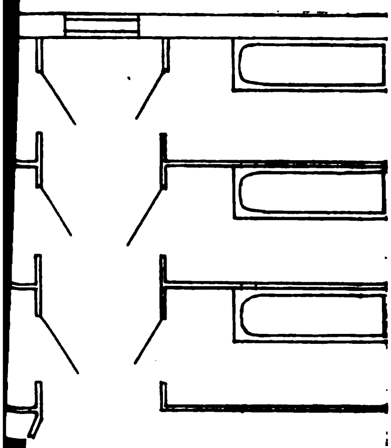
The following tabulated statement shows the operations in detail of both North and West pumping works during the year 1889.

OPERATIONS OF BOTH PUMPING WORKS COMBINED.

MONTHS. 1889.	No. of Days.	Total No. of Gallons of Water Pumped per Month, less 5% per cent. for loss of Action.	Average No. of Gallons of Water Pumped per Day, less 5% per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Average Head against Pumps in Feet.
January	31	3,204,357,460	103,366,370	4,644,170	148,520	108.08
February	28	3,196,086,170	114,145,930	4,554,980	163,050	105.49
March	31	3,387,120,965	108,616,168	5,213,370	167,976	107.18
April	30	3,253,544,560	108,488,805	4,875,460	162,516	105.53
May	31	3,458,681,170	111,570,400	5,133,280	165,587	106.52
June	30	3,384,349,395	112,811,640	4,946,080	164,868	106.94
July	31	3,640,107,945	117,422,830	5,447,630	175,725	104.63
August	31	3,634,926,795	116,610,530	5,371,280	173,258	105.64
September	30	3,445,038,300	114,834,600	5,077,650	169,250	105.63
October	31	3,455,606,350	111,471,120	5,329,800	171,920	108.31
November	30	3,142,864,945	104,762,160	5,220,530	174,010	106.68
December	31	3,301,560,350	106,501,940	5,419,960	174,833	104.38
TOTALS	365	40,504,244,405	....	61,234,190	....	......
General average per Month	....	3,375,353,700	....	5,102,850	....	......
General average per Day	....	....	110,895,707	....	167,636	106 25

The quantity of water pumped by both Works and the cost of the same for the past two years was as follows:

YEAR.	PUMPING.		COST.	
	Total No. of Gallons.	Daily Average.	Total Cost.	Average Cost per Million Gallons.
1888.	38,121,858,570	104,315,624	$246,468.06	$6.46 $\frac{53}{100}$
1889.	40,504,244,405	110,895,707	238,517.84	5.88 $\frac{87}{100}$
Increase,	2,382,385,835	6,580,083	....	....
Decrease,	....	....	$7,950.22	.57 $\frac{66}{100}$



CHICAGO, ILL.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

YEAR	WATER DISTRIBUTED DAILY IN U. S. GALLONS.													REVENUE.		TAPS.			PIPE.				POPULATION.	
	Actual Supply.	Per cent. of Increase.	Estimate at one sixth Annual Increase.	Estimate made in 1851 based on 35 Gallons per Inhabitant.	Quantity to each Inhabitant.	Per cent. of Increase.	Average Quantity per Mile of Pipe.	Per cent. of Increase.	Capacity of Works per Mile of Pipe.	Average quantity for each Tap.	Quantity for one dollar per Year.	Capacity of Works.	Proportion of Pumping capacity to quantity supplied.	Amount Collected.	Per cent. of Increase.	Number of Taps in Use.	Per cent. of Increase.	Number of Inhabitants to each Tap.	Miles of Pipe Laid.	Miles of Pipe in Use.	Per cent. of Increase.	Number of Inhabitants per Mile of Pipe.	Total Numbers.	Per cent. of Increase.
1858	2,991,413	......	......	2,340,000	32.8	......	41,317	......	276,243	641	28.29	20,000,000	1 to 6.7	$ 102,179	......	4,666	......	19.5	...	72.4	......	1,257	91,000	......
1859	3,877,119	29.61	3,489,980	2,520,000	......	......	45,559	10.26	235,017	705	31.53	20,000,000	1 to 5.0	122,948	20.32	5,511	18.10	....	12.7	85.1	17.54	......	......	......
1860	4,703,525	21.31	4,071,644	2,700,000	43.0	31.10	51,687	13.45	219,890	740	35.86	20,000,000	1 to 4.2	131,162	6.68	6,350	15.22	17.2	5.9	91.0	6.93	1,201	109,260	20.06
1861	4,841,520	2.93	4,750,251	2,880,000	......	......	50,803	‖ 1.71	209,863	704	32.21	20,000,000	1 to 4.1	150,290	14.58	6,876	8.28	....	4.3	95.3	4.72	......	......	......
1862	6,074,739	25.47	5,541,960	3,060,000	43.9	2.09	57,909	13.96	190,657	815	40.25	20,000,000	1 to 3.2	150,920	0.41	7,450	8.34	18.5	9.6	104.9	10.07	1,317	138,186	26.47
1863	6,400,298	5.35	6,465,620	3,240,000	......	......	55,461	‖ 4.23	173,310	760	33.53	20,000,000	1 to 3.1	190,886	26.48	8,412	12.91	....	10.5	115.4	10.00	......	......	......
1864	6,913,259	8.01	7,543,223	3,420,000	40.8	‖ 7.30	54,306	‖ 2.09	157,109	701	30.87	20,000,000	1 to 2.9	224,246	17.47	9,855	17.15	17.1	11.9	127.3	10.91	1,330	169,353	22.55
1865	7,610,459	10.08	8,800,427	3,600,000	......	......	53,899	‖ 0.75	141,643	667	30.14	20,000,000	1 to 2.6	252,441	12.57	11,406	15.73	....	13.9	141.2	10.91	1,264	178,492	......
1866	8,681,536	14.07	10,267,165	3,780,000	43.3	6.12	57,040	5.82	131,406	637	28.83	20,000,000	1 to 2.3	301,124	19.28	13,634	19.53	14.5	11.0	152.2	7.80	1,316	200,418	18.34
1867	11,562,273	33.18	11,978,359	3,960,000	......	......	66,145	15.96	114,416	701	34.24	20,000,000	1 to 1.7	337,468	12.06	16,498	21.00	....	22.6	174.8	14.84	......	......	......
1868	14,724,999	27.35	13,974,752	4,140,000	58.4	34.87	70,589	6.71	182,166	704	34.76	38,000,000	1 to 2.6	420,656	24.65	20,915	26.77	11.7	33.8	208.6	19.33	1,208	252,054	25.76
1869	18,633,278	26.54	16,303,878	4,320,000	......	......	77,670	10.03	158,400	658	34.09	38,000,000	1 to 2.2	476,968	13.38	28,308	35.34	...	31.3	239.9	15.00	......	......	......
1870	21,766,260	16.81	19,021,191	4,536,000	72.8	24.65	79,890	2.85	139,475	616	40.35	38,000,000	1 to 1.7	539,318	13.07	35,318	24.74	8.2	32.5	272.4	13.13	1,096	298,700	18.56
1871	23,464,877	7.80	22,191,389	4,752,000	72.2	......	81,568	2.10	132,095	616	53.58	38,000,000	1 to 1.6	446,265	‖17.26	38,110	7.92	8.2	15.3	287.7	5.51	1,130	325,000	......
1872	27,536,819	17.35	25,889,954	5,004,000	74.5	2.33	88,605	8.62	122,272	648	50.62	38,000,000	1 to 1.3	543,914	21.88	42,511	11.54	8.3	23.1	310.8	8.02	1,188	369,293	23.63
1873	32,117,312	16.63	30,204,947	5,256,000	......	......	91,387	3.14	210,562	669	45.31	74,000,000	1 to 2.3	708,834	30.32	47,995	12.90	....	40.6	351.4	13.06	......	......	......
1874	38,090,952	18.60	35,239,104	5,544,000	96.3	29.40	98,579	7.87	191,511	738	53.94	74,000,000	1 to 1.9	705,926	‖ 0.41	51,563	7.43	7.7	35.0	386.4	10.00	1,023	395,408	7.07
*1875	39,844,556	4.60	41,112,288	5,832,000	......	......	97,180	‖ 1.44	188,488	720	......	74,000,000	1 to 1.8	637,996	......	55,293	7.23	....	23.6	410.0	6.10	......	......	......
1876	41,931,481	5.23	47,964,337	......	103.0	7.00	100,700	3.62	177,713	733	50.42	74,000,000	1 to 1.7	831,555	17.79	57,130	3.32	7.1	6.4	416.4	1.56	977	407,000	2.93
1877	52,183,892	24.45	55,958,293	......	......	......	122,878	22.02	244,890	803	57.77	104,000,000	1 to 2.0	902,476	8.52	59,369	3.91	....	8.2	424.6	1.96	......	......	......
1878	53,600,789	2.71	65,284,792	......	122.7	19.12	124,673	1.46	241,900	801	56.77	104,000,000	1 to 1.9	944,190	4.62	61,384	3.40	7.1	5.3	429.9	1.24	1,016	436,731	7.30
1879	56,322,441	5.07	76,165,590	......	......	......	127,651	1.95	235,667	886	61.08	104,000,000	1 to 1.8	922,011	‖ 2.24	63,510	3.46	....	11.4	441.3	3.07	......	......	......
1880	57,384,376	2.16	......	......	112.0	‖ 5.90	126,009	‖ 0.87	228,370	844	66.70	104,000,000	1 to 1.8	860,369	‖ 6.07	67,949	7.00	7.5	14.1	455.4	2.77	1,124	512,060	‡17.26
1881	63,922,700	11.09	......	......	......	......	125,343	‖ 0.05	220,200	865	68.24	104,000,000	1 to 1.6	936,802	8.88	73,627	8.35	....	16.9	472.3	3.07	......	......	......
1882	66,166,969	3.51	......	......	110.1	‖ 1.70	133,079	6.17	209,171	839	63.07	104,000,000	1 to 1.5	1,049,033	11.09	78,840	7.08	8.6	24.9	497.2	5.27	1,207	600,450	‡17.26
1883	73,265,592	10.72	......	......	......	......	141,276	6.16	200,540	857	64.10	104,000,000	1 to 1.4	1,142,868	8.94	85,496	8.44	....	21.4	518.6	4.30	......	......	......
1884	80,017,990	9.52	......	......	113.6	3.20	147,281	4.25	246,641	868	66.65	134,000,000	1 to 1.6	1,200,538	5.05	92,133	7.77	7.6	24.7	543.3	4.76	1,296	704,080	‡17.26
1885	91,650,190	14.22	......	......	......	......	162,180	10.10	237,126	928	68.44	134,000,000	1 to 1.4	1,339,038	11.53	98,688	7.11	....	21.8	565.1	4.01	......	......	......
1886	97,789,706	6.70	......	......	118.4	4.22	164,076	1.17	224,824	916	71.12	134,000,000	1 to 1.3	1,374,837	2.67	106,771	8.19	7.7	30.9	596.0	5.47	1,386	825,880	......
1887	101,937,842	4.24	......	......	119.9	1.27	159,727	‖ 2.65	209,967	881	68.41	134,000,000	1 to 1.3	1,490,000	8.38	115,578	8.25	7.3	42.2	638.2	7.08	1,332	850,000	2.92
1888	104,315,624	2.33	......	......	119.2	‖ 0.58	154,062	‖ 3.55	233,348	894	67.00	158,000,000	1 to 1.5	1,557,116	4.50	125,667	8.73	7.0	38.9	677.1	6.09	1,292	875,000	2.94
1889	110,895,707	6.30	......	......	123.2	3.36	151,953	‖ 1.37	216,498	832	68.38	158,000,000	1 to 1.4	1,621,750	4.15	133,284	6.06	6.9	52.7	729.8	7.78	1,233	900,000	2.85

* Municipal year changed from April 1st to January 1st. The items are for nine months only.

‖ Decrease.

‡ Estimated upon the increase from 1858 to 1878.

NORTH PUMPING WORKS.

CHICAGO, January 22, 1890.

W. R. NORTHWAY,
City Engineer.

SIR:—I herewith submit the Thirty-Seventh Annual Report of these works for the year ending December 31, 1889.

Since my last report the books and records have been written up, and I am now enabled to give the data left out.

The following tabulated record will give in detail the operation of the engines and boilers at these works for the year 1887:

OPERATIONS OF OLD ENGINES AND BOILERS.

MONTHS. 1887.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 5⅔ per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 5⅔ per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per day for Pumping.	Pounds of Coal Consumed per Month for changing Boilers.	Total Pounds of Coal Consumed per Month.	Average head against Pumps in Feet.	DUTY.
		H. M.	H. M.										
January	31	744:00	24:00	841,992	27,161	1,321,902,470	42,614,010	2,254,070	72,710	5,000	2,259,070	99.8	48,812,000
February	28	672:00	24:00	690,423	24,594	1,127,305,160	40,260,900	1,927,410	68,840	2,700	1,930,110	100.5	49,022,000
March......... .	31	744:00	24:00	692,091	22,325	1,154,684,320	41,238,730	1,994,530	64,410	2,100	1,996,630	101.4	48,958,000
April...........	30	720:00	24:00	668,035	22,268	1,137,447,380	37,914,910	1,883,140	62,770	4,700	1,887,840	102.5	51,634,000
May............	31	744:00	24:00	855,032	27,581	1,308,409,605	42,206,760	2,235,280	72,110	1,750	2,237,035	103.8	50,672,000
June	30	720:00	24:00	790,597	26,353	1,189,153,095	39,638,440	2,112,700	70,420	3,120	2,115,820	103.3	48,491,000
July............	31	744:00	24:00	836,396	26,980	1,306,807,890	42,155,090	2,219,600	71,600	1,980	2,221,580	104.3	51,213,000
August	31	744:00	24:00	673,969	21,741	1,145,713,710	36,958,510	1,936,700	62,470	1,350	1,938,050	104.0	51,311,000
September.......	30	720:00	24:00	625,764	20,859	1,090,624,425	36,354,150	1,812,000	60,400	3,590	1,815,590	103.5	51,954,000
October....	31	744:00	24:00	824,457	26,595	1,283,678,900	41,408,990	2,181,300	70,360	2,420	2,183,720	105.0	51,534,000
November	30	720:00	24:00	579,180	19,306	1,031,871,400	34,395,710	1,703,100	56,770	1,960	1,705,060	107.1	54,117,000
December........	31	743:30	23:59	512,888	16,544	934,100,210	30,132,260	1,696,650	54,730	5,880	1,702,530	112.0	51,413,000
TOTALS.......	365	8,759:30	.....	8,590,824	......	14,031,698,565	....	23,956,480	......	36,550	23,993,035	102.6	49,853,000
Gen'l Average per Month.	...	729:57½	.....	715,902	......	1,002,641,547	....	1,996,374	.....	3,050	1,999,420	.....	....
Gen'l Average per Day..	...	....	23:59	....	23,536	....	38,443,010	....	65,630	100	65,730	.....	....

NOTE.—Coal for heating building and pumping out wells included in above amount.

OPERATIONS OF GASKILL ENGINES AND BOILERS.

MONTHS. 1887.	No. of Days Run.	No. of Hours Run per Month. H. M.	Average No. of Hours Run per Day. H. M.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 3 per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 3 per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boilers.	Total Pounds of Coal Consumed per Month.	Average Head against Pumps in Feet.	DUTY.
June	23	552:00	24:00	660,808	21,577	307,275,720	13,359,810	459,900	15,210	770	460,670	82.3	45,859,000
July	31	739:00	23:50	970,089	31,293	451,091,385	14,551,330	593,600	17,150	1,305	594,905	91.5	57,990,000
August	31	728:50	23:30	1,148,981	37,064	534,276,165	17,234,720	648,000	20,900	2,405	650,405	93.2	64,087,000
September	30	717:00	23:54	1,130,323	37,677	525,600,195	17,520,010	625,200	20,840	1,500	626,700	95.8	67,168,000
October	26	575:40	22:07	831,747	31,990	386,762,355	14,875,470	515,965	19,850	4,610	520,575	98.6	61,640,000
November	30	710:00	23:40	972,040	32,401	451,998,600	15,066,620	576,200	19,200	....	576,200	103.9	67,974,000
December	31	744:00	24:00	999,458	32,208	464,747,970	14,991,870	595,400	19,210	1,680	597,080	105.5	68,679,000
TOTALS	202	4,766:30	......	6,713,446	....	3,121,752,390	....	4,014,265	......	12,270	4,026,535	95.8	62,138,000
Gen'l Average per Month	. .	704:20	......	559,454	....	260,146,033	....	334,520	....	1,020	335,540	......	....
Gen'l Average per Day	...	....	23:35	....	33,234	....	15,454,220	....	19,870	60	19,930	......	....

NOTE.—One Engine started pumping water for City, June 8th, the other one a week later.

The following table shows the total quantity pumped per month, by all the engines together, and the daily average:

MONTHS, 1887.	Total No. of Gallons of Water Pumped per Month.	Average No. of Gallons of Water Pumped per Day.
January	1,321,902,470	42,614,015
February	1,127,305,160	40,260,898
March	1,154,684,320	41,238,725
April	1,137,447,380	37,914,913
May	1,308,409,605	42,206,761
June	1,496,428,815	49,880,960
July	1,757,899,275	56,706,430
August	1,679,989,875	54,193,230
September	1,616,224,620	53,874,150
October	1,670,441,255	53,885,200
November	1,483,870,000	49,462,330
December	1,398,848,180	45,124,130
TOTALS	17,153,450,955	
GENERAL AVERAGE		46,995,750

The annexed table sets forth the total quantity of water pumped, and the time run by the several engines, respectively:

Engines Designated as	No. of Days Run.	Total No. of Hours Run.	Total Revolutions.	Total Gallons of Water Pumped.
		H. M.		
"1853."	27	223:30	132,005	64,682,450
"1857."	140	1,295:15	720,220	593,069,400
"1867."	322	4,894:45	3,001,512	2,851,436,400
"1872."	364	8,674:10	4,687,087	10,522,510,315
Gaskill, No. 1.	192	4,020:00	3,669,253	1,706,202,645
Gaskill, No. 2.	190	2,864:10	3,044,193	1,415,549,745
TOTALS		21,971:50	15,304,270	17,153,450,955

FUEL.

Coal has been received and used as follows:

LACKAWANNA COAL.

	Tons.	Pounds.	Tons.	Pounds.
On hand January 1, 1887,			565	1,800
Received large egg coal,			14,156	160
Used for work shop,...	235	1,170		
Used for warming and testing new boilers...	50	610		
Used for testing new engines, ...	33	1,695		
Used for pumping, (old engines)............	11,978	485		
Used for pumping, (new engines)............	2,007	265		
On hand January 1, 1888,	416	1,775		
Total...........	14,721	1,960	14,721	1,960

SOFT COAL.

	Tons.	Pounds.	Tons.	Pounds.
On hand January 1, 1887,			3	270
Received			107	155
Used for work shop	18	1,130		
Used for new boilers and engines........	2	280		
Used for pipe extension.	42	1,300		
Used for shore inlet	1	1,500		
Used for tunnel shafts and connections	19	60		
Used for new extension to buildings	1	1,550		
Used for changing boilers	23	105		
Used for test weir	1	500		
Total.............	110	425	110	425

EXPENSES DUE TO PUMPING FOR 1887.

Salaries of engineers	$10,112	98
Labor, firemen, etc.	28,262	43
$13,985\frac{750}{2000}$ tons of Lackawanna coal at an average cost of $\$4.58\frac{7}{10}$ per ton	83,731	51
$23\frac{1056}{2000}$ tons of soft coal at an average cost of $4.59 per ton	105	84
302 gallons of lard oil	164	80
1,124 gallons of cylinder oil	615	30
1,436 pounds of lubricating grease	230	40
505½ pounds of tallow	31	28
832½ pounds of packing	281	45
3,544 pounds of waste	307	34
Small stores	767	62
Gas for lighting Works	1,136	20
Repairs of fire room tools	58	84
Repairs of boilers	744	17
Repairs of engines	2,291	68
Total	$128,841	84

Cost of delivering water per million gallons	$\$7.51\frac{11}{100}$
Cost of delivering water per million gallons one foot high	$.07\frac{42}{100}$
Cost of repairs of engines and boilers per million gallons	$.19\frac{68}{100}$

DISTRIBUTED AS FOLLOWS:

To engines	.15
To boilers	$.04\frac{68}{100}$

The following is the tabulated record and cost of pumping for the year 1888 :

OPERATIONS OF OLD ENGINES AND BOILERS.

MONTHS. 1888.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 5% per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 5% per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boiler.	Total Pounds of Coal Consumed per Month.	Average Head Against Pumps in Feet.	DUTY.
		H. M.	H. M.										
January.........	31	744:00	24:00	586,836	18,930	1,049,312,620	33,848,790	1,821,600	58,760	3,640	1,825,240	112.0	53,806,000
February	29	696:00	24:00	784,477	27,050	793,301,645	27,355,230	1,505,100	51,900	1,960	1,507,060	106.2	46,683,000
March	31	744:00	24:00	845,535	27,275	726,080,740	23,421,960	1,394,400	44,980	6,600	1,401,000	103.0	44,730,000
April	30	720:00	24:00	750,179	25,059	641,562,740	21,385,420	1,258,400	41,940	2,100	1,260,500	102.2	43,454,000
May.............	31	744:00	24:00	665,453	21,466	628,827,845	20,288,770	1.235,200	39,840	2,100	1,237,300	103.6	43,986,000
June	30	720:00	24:00	599,004	19,967	952,711,790	31,757,060	1,584,700	52,820	4,875	1,589,575	104.2	52,245,000
July.............	31	744:00	24:00	588,484	18,983	1,065,911,325	34,384,230	1,609,200	51,910	2,500	1,611,700	104.7	57,839,000
August	31	744:00	24:00	650,493	20,983	1,105,712,115	35,668,130	1,690,100	54,520	5,300	1,695,400	109.5	59,746,000
September	30	720:90	24:60	571,898	19,063	988,644,515	32,95[illegible],820	1,638,215	54,610	.....	1,638,215	108.3	54,508,000
October	31	744:00	24:00	563,962	18,192	952,704,340	30,732,400	1,595,500	51,470	7,060	1,602,560	108.8	53,643,000
November	30	720:00	24:00	700,388	23,346	1,026,647,290	34,221,570	1,870,900	62,360	1,680	1,872,580	108.9	49,838,000
December.......	31	744:00	24:00	665,886	21,480	1,049,913,690	33,868,180	1,807,600	58,310	1,375	1,808,975	109.5	53,043,000
TOTALS	366	8,784:00	.....	7,972,595	......	10,981,330,695	....	19,010,915	......	39,190	19,050,105	106.7	51,402,000
Gen'l Average per Month.	...	732:00	.....	664,383	......	915,110,890	....	1,584,240	......	3,270	1,587,510	.....	....
Gen'l Average per Day..	...	....	24:00	....	21,783	....	30,003,630	....	51,940	110	52,050	.....	

NOTE.—Coal for heating building and pumping out wells included in above amount.

OPERATIONS OF GASKILL ENGINES AND BOILERS.

MONTHS, 1888.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 3 per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 3 per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boilers.	Total Pounds of Coal Consumed per Month.	Average Head against Pumps in Feet.	DUTY.
		H. M.	H. M.										
January........	31	734:50	23:42	1,191,690	38,441	554,135,850	17,875.350	562,800	18,160	1,960	564,760	106.2	87,207,000
February........	29	696:00	24:00	1,241,086	42,796	577,104,990	19,900,170	528,300	18,220	2,240	530,540	99.5	90,649,000
March..........	31	744:00	24:00	1,359,305	43,848	632,076,825	20,389,570	606,600	19,570	....	606,600	97.3	84,640,000
April...........	30	720:00	24:00	1,255,022	41,834	583,585,230	19,452,840	569,100	18,700	1,800	570,900	97.3	82,951,000
May..........	31	737:05	23:47½	1,199,061	38,679	557,563,365	17,985,910	555,100	17,900	1,505	556,605	97.8	81,927,000
June............	30	714:00	23:48	1,086,191	36,206	505,078,815	16,835,960	544,500	18,150	1,650	546,150	105.1	81,307,000
July...........	31	744:00	24:00	1,058,734	34,152	492,311,310	15,881,010	510,900	16,480	....	510,900	106.3	85,428,000
August.........	31	744:00	24:00	1,024,681	33,054	476,476,665	15,370,220	494,100	15,940	1,640	495,740	104.1	83,722,000
September......	30	720:00	24:00	981,093	32,703	456,208,245	15,206,940	476,100	15,870	1,620	477,720	105.3	75,304,000
October.........	31	741:00	23:54	918,324	29,462	424,695,660	13,699,860	558,300	18,010	2,790	561,090	105.2	66,740,000
November.......	29	696:00	24:00	898,439	30,808	415,449,135	14,325,830	522,900	18,030	....	522,900	104.3	69,111,000
December.......	31	736:30	23:45½	902,477	29,112	419,651,805	13,537,150	567,000	18,290	1,650	568,650	103.6	63,948,000
TOTALS.......	365	8,727:25	.....	13,106,103	....	6,094,337,895	....	6,495,700	......	16,855	6,512,555	102.6	80,281,000
Gen'l Average per Month....		727:17	......	1,092.175	....	507,861,490	....	541,310	....	1,400	542,710	......	....
Gen'l Average per Day..	..	....	23:54½	....	35,907	....	16,696,820	....	17,800	40	17,840	......	....

NOTE. —Electric Light started in September, and above amounts include Coal for running the same.

OPERATIONS OF OLD ENGINES AND BOILERS.

MONTHS. 1888.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 5% per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 5% per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boiler.	Total Pounds of Coal Consumed per Month.	Average Head Against Pumps in Feet.	DUTY.
		H. M.	H. M.										
January.........	31	744:00	24:00	586,836	18,930	1,049,312,620	33,848,790	1,821,600	58,760	3,640	1,825,240	112.0	53,806,000
February	29	696:00	24:00	784,477	27,050	793,301,645	27,355,230	1,505,100	51,900	1,960	1,507,060	106.2	46,683,000
March	31	744:00	24:00	845,535	27,275	726,080,740	23,421,960	1,394,400	44,980	6,600	1,401,000	103.0	44,730,000
April	30	720:00	24:00	750,179	25,059	641,562,740	21,385,420	1,258,400	41,940	2,100	1,260,500	102.2	43,454,000
May............	31	744:00	24:00	665,453	21,466	628,827,845	20,288,770	1.235,200	39,840	2,100	1,237,300	103.6	43,986,000
June	30	720:00	24:00	599,004	19,967	952,711,790	31,757,060	1,584,700	52,820	4,875	1,589,575	104.2	52,245,000
July............	31	744:00	24:00	588,484	18,983	1,065,911,325	34,384,230	1,609,200	51,910	2,500	1,611,700	104.7	57,839,000
August	31	744:00	24:00	650,493	20,983	1,105,712,115	35,668,130	1,690,100	54,520	5,300	1,695,400	109.5	59,746,000
September	30	720:90	24:60	571,898	19,063	988,644,515	32,95[illegible],920	1,638,215	54,610	.....	1,638,215	108.3	54,508,000
October	31	744:00	24:00	563,962	18,192	952,704,340	30,732,400	1,595,500	51,470	7,060	1,602,560	108.8	53,643,000
November	30	720:00	24:00	700,388	23,346	1,026,647,290	34,221,570	1,870,900	62,360	1,680	1,872,580	108.9	49,838,000
December.......	31	744:00	24:00	665,886	21,480	1,049,913,690	33,868,180	1,807,600	58,310	1,375	1,808,975	109.5	53,043,000
TOTALS	366	8,784:00	.....	7,972,595	......	10,981,330,695	....	19,010,915	......	39,190	19,050,105	106.7	51,402,000
Gen'l Average per Month.	...	732:00	.....	664,383	......	915,110,890	....	1,584,240	......	3,270	1,587,510	.....	....
Gen'l Average per Day..	...	....	24:00	....	21,783	....	30,003,630	....	51,940	110	52,050	.....	

NOTE.—Coal for heating building and pumping out wells included in above amount.

OPERATIONS OF GASKILL ENGINES AND BOILERS.

MONTHS. 1888.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 3 per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 3 per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boilers.	Total Pounds of Coal Consumed per Month.	Average Head against Pumps in Feet.	DUTY.
		H. M.	H. M.										
January........	31	734:50	23:42	1,191,690	38,441	554,135,850	17,875.350	562,800	18,160	1,960	564,760	106.2	87,207,000
February........	29	696:00	24:00	1,241,086	42,796	577,104,990	19,900,170	528,300	18,220	2,240	530,540	99.5	90,649,000
March..........	31	744:00	24:00	1,359,305	43,848	632,076,825	20,389,570	606,600	19,570	....	606,600	97.3	84,640,000
April...........	30	720:00	24:00	1,255,022	41,834	583,585,230	19,452,840	569,100	18,700	1,800	570,900	97.3	82,951,000
May.......... ..	31	737:05	23:47½	1,199,061	38,679	557,563,365	17,985,910	555,100	17,900	1,505	556,605	97.8	81,927,000
June............	30	714:00	23:48	1,086,191	36,206	505,078,815	16,835,960	544,500	18,150	1,650	546,150	105.1	81,307,000
July............	31	744:00	24:00	1,058,734	34,152	492,311,310	15,881,010	510,900	16,480	....	510,900	106.3	85,428,000
August.........	31	744:00	24:00	1,024,681	33,054	476,476,665	15,370,220	494,100	15,940	1,640	495,740	104.1	83,722,000
September......	30	720:00	24:00	981,093	32,703	456,208,245	15,206,940	476,100	15,870	1,620	477,720	105.3	75,304,000
October.........	31	741:00	23:54	913,324	29,462	424,695,660	13,699,860	558,300	18,010	2,790	561,090	105.2	66,740,000
November.......	29	696:00	24:00	893,439	30,808	415,449,135	14,325,830	522,900	18,030	....	522,900	104.3	69,111,000
December.......	31	736:30	23:45½	902,477	29,112	419,651,805	13,537,150	567,000	18,290	1,650	568,650	103.6	63,948,000
TOTALS.......	365	8,727:25	.....	13,106,103	....	6,094,337,895	....	6,495,700	......	16,855	6,512,555	102.6	80,281,000
Gen'l Average per Month.	...	727:17	......	1,092.175	....	507,861,490	....	541,310	....	1,400	542,710	......	....
Gen'l Average per Day..	..	....	23:54½	....	35,907	....	16,696,820	....	17,800	40	17,840	......	....

NOTE.—Electric Light started in September, and above amounts include Coal for running the same.

The following table gives the total quantity pumped per month, by all of the engines together, and the daily average:

MONTHS OF 1888.	Total No. of Gallons of Water Pumped per Month.	Average No. of Gallons of Water Pumped per Day.
January	1,603,448,470	51,724,140
February	1,370,406,635	47,255,400
March	1,358,157,565	43,811,530
April	1,225,147,970	40,838,260
May	1,186,391,250	38,270,680
June	1,457,790,605	48,593,020
July	1,558,222,635	50,265,240
August	1,582,188,780	51,038,350
September	1,444,852,760	48,161,760
October	1,377,400,000	44,432,260
November	1,442,096,425	48,069,880
December	1,469,565,495	47,405,330
TOTALS	17,075,668,590	
GENERAL AVERAGE		46,654,830

The annexed table shows the total quantity pumped, and the time run by the several engines, respectively:

Engines Designated as	No. of Days Run.	Total No. of Hours Run.	Total No. of Revolutions.	Total No. of Gallons of Water Pumped.
		H. M.		
"1853."	226	1,789:10	1,067,830	523,236,700
"1857."	161	1,870:05	1,156,867	890,787,590
"1867."	240	4,223:00	2,624,837	2,556,034,460
"1872."	251	5,981:40	3,123,061	7,011,271,945
Gaskill, No. 1.	361	7,296:00	6,700,909	3,115,922,685
Gaskill, No. 2.	359	7,021:05	6,405,194	2,978,415,210
TOTALS		30,181:00	21,078,698	17,075,668,590

FUEL.

Coal has been received and used as follows:

LACKAWANNA COAL.

	Tons.	Pounds.	Tons.	Pounds.
On hand January 1, 1888,			416	1,775
Received large egg coal,			11,521	665
Received pea coal......			23	730
Used for work shop....	227	1,750		
Used for pumping, (Gaskill engines)........	3,247	1,700		
Used for pumping, (old engines)............	8,143	1,720		
On hand January 1, 1889,	342			
Total..........	11,961	1,170	11,961	1,170

SOFT COAL.

	Tons.	Pounds.
Received Briar Hill nut.................	20	130
Received Brazil nut....................	46	795

	Tons.	Pounds.	Tons.	Pounds.
Received of Youghiogheny nut.			1,348	1,930
Erie coal..............			87	855
Used for pumping (old engines)............	1,361	1,195		
Used for changing boilers	28	45		
Used for pipe extension.	29	1,260		
Used for work shop.....	20	800		
Used for carpenter shop .	1	1,750		
Used for stable.........	2	1,000		
Erie coal on hand January 1, 1889..............	5			
Youghiogheny nut on hand January 1, 1889.......	53	1,660		
Total..............	1,502	1,710	1,502	1,710

EXPENSES DUE TO PUMPING FOR 1888.

Salaries of engineers	$ 14,069	53
Labor, firemen, etc.	34,789	29
11,391$\frac{1420}{2000}$ tons of Lackawanna coal at an average cost of 6.31\frac{2}{10}$ per ton	71,905	00
1,361$\frac{1195}{2000}$ tons Youghiogheny nut coal at an average cost of 3.23\frac{3}{10}$ per ton	4,402	10
28$\frac{45}{2000}$ tons of Erie coal at an average cost of 4.19\frac{2}{10}$ per ton	117	47
309 gallons of lard oil	203	50
60 gallons of kerosene oil	7	35
1,796 gallons of cylinder oil	660	79
55 gallons of natural oil	13	75
1,866 pounds of lubricating grease	134	95
368 pounds of tallow	22	08
5,404 pounds of waste	446	38
910$\frac{1}{2}$ pounds of packing	188	97
Gas for lighting works	1,223	40
Small stores	984	21
Electric light	511	51
Repairs of fire room tools	56	31
Repairs of boilers	6,742	46
Repairs of engines	12,000	75
Total	$148,479	80

Cost of delivering water per million gallons.	\$8.69$\frac{54}{100}$
Cost of delivering water per million gallons one foot high........................	.08$\frac{30}{100}$
Cost of repairs of engines and boilers per million gallons......................	1.11$\frac{20}{100}$

DISTRIBUTED AS FOLLOWS:

To engines............................	.71$\frac{39}{100}$
To boilers.............................	.39$\frac{81}{100}$

The repairs of engines and boilers in detail are as follows:

REPAIRS OF BOILERS.

Two new boilers with Murphy furnaces in place of old one	\$6,122 72	
Repairs of Murphy boilers	28 02	
Repairs of old boilers.....	122 18	
Repairs of Gaskill boilers ..	469 54	
		\$6,742 46

REPAIRS OF ENGINES.

"'67" engine, new pump valves and boring out pumps (commenced in December, 1887)........	\$3,336 40
"'67" engine (compounding)	4,292 29
"'67" engine (ordinary repairs).................	289 99
"'72" engine (ordinary repairs).................	314 19

"'72" engine (pump valves)	$4,808 84	
"'57" engine (ordinary repairs	112 90	
"'53" engine (ordinary repairs)	140 38	
"'53" engine (pump valves)	1,243 88	
Gaskill engines (ordinary repairs)	666 63	
		$15,205 50
		$21,947 96
Less brass, copper and old metal sold		3,204 75
Total		$18,743 21

The other expenses not due to pumping were as follows:

Engine, dynamo, lamps and wiring for electric light plant	$3,881 63
Main water pipes outside of building	2,074 06
Ice tools for old shore inlet	61 50
Chief engineer's office furniture and supplies	244 68
Carpenter work, painting, plastering, etc., for repairs of building	1,151 80
New shore tunnel	3 50
Old tunnels	59 50
Care of grounds	604 64
Watching premises	1,371 80
Repairs of asphalt pavement	254 35
New sidewalks	177 40
Piling for shore protection	1,920 00
	$11,804 86

The following is the tabulated record and cost of pumping for the year 1889:

The total quantity of water pumped, with an allowance of five-and-two-thirds per cent. for loss of action in the old pumps and three per cent. in the new pumps, is 18,198,651,000 gallons, being seven per cent. increase of the quantity pumped during the year 1888. The daily average was 49,859,320 million gallons.

The greatest daily average pumped for a single month was in August, 55,075,420 gallons. The least daily average was during January, 44,030,200 gallons.

For several days the largest quantity pumped was nearly equal, viz:

July 1	61,145,470 gallons
July 8	60,575,460 gallons
July 9	62,321,370 gallons
August 26	59,616,830 gallons
August 28	59,004,600 gallons
August 30	60,346,180 gallons
August 31	59,548,360 gallons

The least quantity pumped was on the fifth of May, 34,631,580 gallons.

The following tabulated record exhibits in detail the operations of these works for the year 1889:

OPERATIONS OF OLD ENGINES AND BOILERS.

MONTHS. 1889.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 5% per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 5% per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boilers.	Total Pounds of Coal Consumed per Month.	Average Head Against Pumps in Feet.	DUTY.
		H. M.	H. M.										
January.........	31	744:00	24:00	552,237	17,814	959,244,140	30,943,360	1,643,510	53,020	1,100	1,644,610	111.1	54,080,000
February........	28	672:00	24:00	535,811	19,136	917,443,260	32,765,830	1,515,400	54,120	2,450	1,517,850	108.4	54,732,000
March	31	744:00	24:00	573,153	18,489	977,223,045	31,523,320	1,614,400	52,080	.. ..	1,614,400	111.9	56.490,000
April	30	720:00	24:00	581,312	19,377	961,774,695	32,059,160	1,551,600	51,720	4,070	1,555,670	111.8	57,793,000
May	31	744:00	24:00	631,394	20,367	1,027,010,310	33,129,360	1,643,500	53,020	4,780	1,648,280	113.7	59,255,000
June............	30	720:00	24:00	670,847	22,361	1,009,363,925	33,645,460	1,710,100	57,000	2,440	1,712,540	113.4	55,821,000
July	31	744:00	24:00	798,098	25,745	1,168,527,340	37,694,430	1,936,880	62,480	3,400	1,940,280	104.7	52,680,000
August..........	31	744:00	24:00	785,640	25,343	1,183,831,350	38,188,110	1,934,600	62,400	4,100	1,938,700	104.4	53,280,000
September.......	30	720:00	24:00	735,920	24,531	1,102,049,815	36,734,990	1,814,700	60,490	4,260	1,818,960	103.8	52,574,000
October.........	31	744:00	24:00	672,417	21,691	1,074,502,595	34,661,370	1,788,200	57,680	5,700	1,793,900	105.2	52,718,000
November.......	30	720:00	24:00	662,743	22,091	1,027,337,055	34,244,570	1,773,200	59,100	2,500	1,775,700	104.9	50,686,000
December.......	31	744:00	24:00	710,076	22,905	1,095,732,600	35,346,210	1,919,300	61,910	4,900	1,924,200	103.7	49,374,000
TOTALS..... ..	365	8,760:00	.....	7,909,658	.....	12,504,040,130	....	20,845,390	......	39,700	20,885,090	108.1	54,079,000
Gen'l Average per Month.	...	730:00	.....	659,138	......	1,042,003,340	....	1,737,110	......	3,310	1,740,420	.....	....
Gen'l Average per Day..	...	.... ..	24:00	....	21,670	....	34,257,640	....	57,110	110	57,220	.....	... .

Note.—Coal for heating building and pumping out wells is included in above amount.

OPERATIONS OF GASKILL ENGINES AND BOILERS.

MONTHS. 1889.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours Run per Day.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total Gallons of Water Pumped per Month, less 3 per cent. for loss of Action.	Average Gallons of Water Pumped per Day, less 3 per cent. for loss of Action.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds of Coal Consumed per Day for Pumping.	Pounds of Coal Consumed per Month for Changing Boilers.	Electric Light. Total No. of Hours run per Month.	Electric Light. Total Pounds Coal Consumed per Month.	Total Pounds of Coal Consumed per Month.	Average Head against Pumps in Feet.	DUTY.
		H. M.	H. M.												
January	31	727:20	23:28	872,456	28,143	405,692,040	13,086,840	451,710	14,570	1,650	498:35	78,890	532,250	103.1	77,225,000
February	28	672:00	24:00	941,530	33,621	437,811,450	15,636,120	481,180	17,560	1,650	413:25	65,420	548,250	100.2	76,034,000
March	31	744:00	24:00	948,876	30,609	441,227,340	14,233,140	564,070	18,190	....	403:25	63,830	627,900	101.5	66,217,000
April	30	720:00	24:00	900,993	30,033	418,961,745	13,965,390	516,260	17,210	....	344:05	54,440	570,700	100.7	68,155,000
May	31	744:00	24:00	1,066,144	34,230	493,431,960	15,917,160	603,730	19,470	....	318:20	50,370	654,100	101.9	69,458,000
June	30	720:00	24:00	1,096,478	36,549	509,862.270	16,995,410	603,530	20,120	....	275:20	43,570	647,100	104.2	73,415,000
July............	31	744:00	24:00	1,124,585	36,277	522,932,025	16,868,770	618,900	19,960	3,600	298:55	47,300	669,800	105.3	74,202,000
August...........	31	744:00	24:00	1,125,821	36,317	523,506,765	16,887,320	618,530	19,950	....	324:40	51,370	669,900	105.3	74,328,000
September	30	718:30	23:57	1,060,365	35,345	493,069,725	16,435,660	588,150	19,600	6,200	354:15	56,050	650,400	103.8	72,574,000
October..........	31	743:55	23:59	1,043,843	33,672	485,386,995	15,657,640	632,800	20,410	....	400:00	63,300	696,100	105.5	67,490,000
November	30	720:00	24:00	980,922	32,697	456,128,730	15,204,290	592,830	19,760	....	430:10	68,070	660,900	104.8	67,248,000
December.........	31	742:10	23:56	1,089,462	35,144	506,599,830	16,341,930	666,560	21,500	3,660	474:15	75,040	745,260	104.8	66,428,000
TOTALS.........	365	8,739:55	......	12,246,475	....	5,694,610,875	... .	6,938,250	....	16,760	4,535:15	717,650	7,672,660	103.4	73,162,000
Gen'l Average per Month	...	728:20	......	1,020,539	....	474,550,910	....	578,190	....	1,390	377:56	59,800	639,390	......	....
Gen'l Average per Day..	...	... .	23:56	....	33,552	....	15,601,670	....	19,010	50	12:25	1,970	21,020	......	....

The following table shows the total quantity pumped per month, by all of the engines together, and the daily average:

MONTHS OF 1889.	Total No. of Gallons of Water Pumped per Month.	Average No. of Gallons of Water Pumped per Day.
January	1,364,936,180	**44,030,200**
February	1,355,254,710	**48,401,950**
March	1,418.450,385	**45,756,460**
April	1,380,736,440	**46,024,550**
May	1,520,442,270	**49,046,530**
June	1,519,226,195	**50,640,870**
July	1,691,459,865	**54,563,200**
August	1,707,338,115	**55,075,420**
September	1,595,119,540	**53,170,650**
October	1,559,889,590	**50,319,020**
November	1,483,465,785	**49,448,860**
December	1,602,332,430	**51,688,140**
TOTALS	18,198,651,005	
GENERAL AVERAGE		**49,859,320**

The annexed table sets forth the total quantity of water pumped, and the time run by the several engines, respectively:

Engines Designated as	No. of Days Run.	Total No. of Hours Run.	Total Revolutions.	Total Gallons of Water Pumped.
		H. M.		
"1853."	229	1,667:00	959,083	**479,541,500**
"1857."	40	329:00	205,076	**157,908,520**
"1867."	302	3,795:00	2,400,773	**2,112,680,240**
"1872."	364	8,684:30	4,344,726	**9,753.909,870**
Gaskill, No. 1.	362	6,946:50	6,149,171	**2,859,364,515**
Gaskill, No. 2.	364	7,065:50	6,097,304	**2,835,246,360**
TOTALS		28.488:10	20,156,133	**18,198,651,005**

FUEL.

Coal has been received and used as follows:

LACKAWANNA COAL.

	Tons.	Pounds.	Tons.	Pounds.
On hand January 1, 1889,			342	
Received large egg coal,			10,166	510
Received pea coal,.....			651	1,420
Used for pumping, (old engines)............	6,571	280		
Used for pumping, (Gaskill engines)........	3,818	1,600		
Used for changing boilers,................	5	1,700		
Used for shop boilers,..	193	490		
Used for lamp department,..............	9	920		
Large egg coal on hand January 1, 1890,....	553	1,820		
Pea coal on hand January 1, 1890,............	7	1,120		
Total...	11,159	1,930	11,159	1,930

SOFT COAL.

	Tons.	Pounds.	Tons.	Pounds.
On hand January 1, 1889,				
Youghiogheny nut coal,			53	1,660
Erie coal,.............			5	
Received Erie coal,....			67	890
Received Youghiogheny nut coal............			3.831	1,990

Used for pumping, (old engines)	3,851	1,110		
Used for pumping, (Gaskill engines)	9	300		
Used for changing boilers,	22	760		
Used for shop boiler,	3	450		
Used for pipe extension,	39	1,420		
Used for carpenter shop,	2			
Used for stable,	3	1,000		
Erie coal on hand January 1, 1890,	1	1,860		
Youghiogheny nut coal on hand January 1, 1890	24	1,640		
Total	3,958	540	3,958	540

EXPENSES DUE TO PUMPING.

Salaries of engineers	$12,513 46
Labor, firemen, etc	32,951 50
6,571$\frac{280}{2000}$ tons of large egg and pea coal for old engines at an average cost of 5.92\frac{9}{10}$ per ton	38,959 50
3,459$\frac{1950}{2000}$ tons of large egg and pea coal for Gaskill engines at an average cost of 5.92\frac{9}{10}$ per ton	20,513 43
3,851$\frac{1110}{2000}$ tons of Youghiogheny nut coal for old engines at an average cost of $3.24 per ton	12,498 70

$9\frac{300}{2000}$ tons of Youghiogheny nut coal for Gaskill engines at an average cost of $3.24 per ton		$29 69
$5\frac{1700}{2000}$ tons of large egg coal for changing boilers at $$5.92\frac{9}{10}$ per ton		34 73
$22\frac{760}{2000}$ tons of soft coal for changing boilers		120 68
1,938 gallons of oil		736 33
2,543 pounds of lubricating grease		188 61
124 pounds of tallow		8 43
4,901 pounds of waste		407 46
Small stores		1,021 51
Gas for lighting works		285 80
Electric Light—		
$358\frac{1650}{2000}$ tons of coal at $$5.92\frac{9}{10}$	$2,127 79	
Repairs and changing machinery	445 90	
Labor for running	827 50	
Lamps, brushes and plugs	253'10	
142 gallons dynamo oil	53 54	
		3,707 83
Portion of stable expense		289 64
Repairs of fire room tools		62 45
Repairs of engines		4,010 16
Repairs of boilers		928 30
Total		$129,268 21

Cost of delivering water per million gallons.	\$7 10$\frac{31}{100}$
Cost of delivering water per million gallons, one foot high........................	06$\frac{12}{100}$
Cost of repairs of engines and boilers per million gallons........................	27$\frac{48}{100}$

Distributed as follows:—

To engines...........................	22$\frac{38}{100}$
To boilers.............................	05$\frac{10}{100}$

The following is the cost of delivering water per million gallons during the past ten years; the cost of coal per million gallons of water pumped, and the cost of coal per ton:

	Cost of Coal per Million Gallons.	Average Cost of Coal per Ton.	Cost of Pumping.
1880............	\$3 98	\$4 83	\$5 68
1881............	5 32	6 18	7 12
1882............	5 52	6 16	7 34
1883............	5 59	5 78	7 27
1884............	5 70	5 91	7 71
1885............	5 17	5 58	7 17
1886............	5 47	6 04	7 33
1887............	4 89	5 99	7 51
1888............	4 47	5 98	8 69
1889............	4 08	5 20	7 10
Average for ten years..	\$5 02	\$5 76	\$7 29

The quantity of water pumped, head, cost of coal and repairs, cost of coal per ton, cost of coal per million, and total cost per million, for the past ten years, are shown in the following table:

YEAR.	Gallons Pumped.	Head.	Cost of Repairs of Engines and Boilers.	Cost of Repairs per Million Gallons.	Cost of Coal per Ton.	Cost of Coal per Million Gallons.	Total Cost of Pumping one Million Gallons	Cost of Pumping one Million Gallons 1 foot high.
1880..	12,354,008,905	104.07	$1,208 67	$\$0\ 09\frac{78}{100}$	$4 83	$3 98	$\$5\ 67\frac{82}{100}$	$\$0\ 05\frac{42}{100}$
1881..	13,758,940,879	105.78	2,200 07	0 16	6 18	5 32	$7\ 12\frac{29}{100}$	$0\ 06\frac{73}{100}$
1882..	14,150,193,884	105.38	696 68	$0\ 04\frac{92}{100}$	6 16	5 52	$7\ 34\frac{6}{100}$	$0\ 06\frac{96}{100}$
1883..	16,365,263,090	107.4	1,388 71	$0\ 09\frac{4}{100}$	5 78	5 59	$7\ 26\frac{86}{100}$	$0\ 06\frac{76}{100}$
1884..	14,505,650,785	107.2	4,002 81	$0\ 26\frac{73}{100}$	5 91	5 70	$7\ 71\frac{7}{100}$	$0\ 07\frac{19}{100}$
1885..	14,004,733,925	113.0	1,206 78	$0\ 08\frac{62}{100}$	5 58	5 17	$7\ 16\frac{93}{100}$	$0\ 06\frac{34}{100}$
1886..	16,238,854,625	108.8	2,063 56	$0\ 12\frac{71}{100}$	6 04	5 47	$7\ 33\frac{7}{100}$	$0\ 06\frac{74}{100}$
1887..	17,153,450,955	99.0	3,376 14	$0\ 19\frac{68}{100}$	5 99	4 89	$7\ 51\frac{11}{100}$	$0\ 07\frac{42}{100}$
1888..	17,075,668,590	104.7	18,988 49	$1\ 11\frac{20}{100}$	5 98	4 47	$8\ 69\frac{54}{100}$	$0\ 08\frac{30}{100}$
1889..	18,198,651,005	105.7	5,000 91	$0\ 27\frac{48}{100}$	5 20	4 08	$7\ 10\frac{31}{100}$	$0\ 06\frac{72}{100}$

TABLE SHOWING QUANTITY OF WATER PUMPED AT THE "NORTH PUMPING WORKS" EACH MONTH DURING PAST TEN YEARS.

MONTH.	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889
January.......	987,419,633	1,160,313,094	1,060,553,498	1,459,650,870	1,597,746,065	1,183,792,300	1,344,346,935	1,321,902,470	1,603,448,870	1,364,986,180
February.. ...	906,653,592	1,071,244,060	984,359,947	1,387,274,940	1,400,054,060	1,172,952,080	1,249,745,645	1,127,305,160	1,370,406,635	1,355,254,710
March	978,890,272	1,084,122,691	1,126,205,744	1,390,238,480	1,461,838,615	1,179,418,925	1,396,064,870	1,154,684,820	1,358,157,565	1,418,450,885
April..........	974,805,639	1,005,401,896	1,010,929,508	1,206,918,690	1,243,150,060	1,082,368,455	1,295,609,455	1,187,447,380	1,225,147,970	1,380,736,440
May	1,060,443,267	962,315,027	1,148,043,237	1,226,970,205	1,352,183,420	1,044,409,125	1,207,402,595	1,308,409,605	1,186,391,250	1,520,442,270
June	1,086,447,318	1,057,288,288	1,231,069,204	1,279,606,075	1,334,334,220	1,095,438,595	1,446,240,195	1,496,428,815	1,457,790,605	1,519,226,195
July.	1,122,556,346	1,272,257,588	1,303,469,202	1,414,407,680	1,400,897,800	1,207,702,805	1,519,236,895	1,757,899,275	1,558,222,635	1,691,459,865
August	1,069,773,864	1,339,158,996	1,314,724,931	1,435,126,930	1,231,482,525	1,222,961,195	1,477,798,050	1,679,989,875	1,582,188,780	1,707,888,115
September.....	1,080,682,710	1,236,847,152	1,300,657,799	1,307,348,100	1,228,234,905	1,170,082,285	1,385,820,055	1,616,224,620	1,444,852,760	1,595,119,540
October.......	1,038,422,722	1,344 345,991	1,230,715,910	1,294,425,870	1,147,392,310	1,206,596,170	1,365,692,850	1,670,441,255	1,377,400,000	1,559,889,590
November.....	982,329,141	1,227,120,714	1,155,586,563	1,530,954,540	1,042,210,985	1,101,196,590	1,202,828,595	1,488,570,000	1,442,096,425	1,483,465,785
December.....	1,035,582,401	998,528,362	1,283,878,346	1,432,341,210	966,175,820	1,335,815,400	1,418,069,045	1,398,848,180	1,469,565,495	1,602,838,480
Totals........	12,854,008,905	13,758,940,879	14,150,193,884	16,365,268,090	15,405,650,785	14,004,738,925	16,238,854,625	17,158,450,955	17,075,668,590	18,198,651,005

The following is a statement of the work done at the machine shops.

NEW HYDRANTS AND STOP VALVES.

	On hand January 1, 1889.	Manf'd in 1889.	On hand January 1, 1890.
Single nozzle hydrants	8	129	35
Double two and one-half inch nozzle hydrants	60	577	100
Double four-inch nozzle hydrants	None.	5	1
Four-inch stop valves	25	57	4
Six-inch stop valves	82	231	8
Eight-inch stop valves	32	89	5
Twelve-inch stop valves	7	22	2
Sixteen-inch stop valves	2	6	None.
Twenty-four inch stop valves	1	None.	None.

In addition to the foregoing work, a number of hydrants and stop-valves have been repaired, and the usual amount of repairing has been done for the various departments.

In July last, the Fire Department removed to a shop of their own, giving us more room, which we were very much in need of. There has been added to the machinery, two screw-cutting lathes, one planer, one band sawing machine, and one wood-turning lathe, which places us in a position to turn out more work than before.

The cost of tools reported in 1886 was..	$10,337	47
Repairs for 1887 and 1888 (estimated) ..	300	00
Repairs for 1889......................	426	51
New Machinery in 1889...............	914	73
Total cost of tools and machinery.......	$11,978	71
Value of lathe and planer received from West pumping works...............	1,100	00
Total	$13,078	71

BUILDINGS.

The buildings, having been repainted and renovated, are in good condition.

GROUNDS.

Some of the shade trees in the front having died, will have to be replaced. A few bushes and shrubs are also needed. A sidewalk is needed on Tower Place, and the space outside of walk should be sodded. As the old shore inlet has been abandoned, I have bricked up all the connections with the tunnels and drifts, thus shutting it off completely, and have partially filled it up.

ENGINES AND BOILERS.

The small single, or "'53," engine was overhauled in the fore-part of the year, the old butterfly valves in the pumps removed, and smaller valves, of the same kind as are in the "'72" engine pumps, put in their places.

In December last, while working upon the "'67" engine, one of the large, double-beat valves in the pump on the crank end of "'57" engine broke, because of a back pressure, one of the small valves in the bucket being held up by a piece of wood. These valves have been in about fourteen years, and have not been out or repaired, and were in a remarkably good condition.

The "'72" engine has been running 364 days, having been stopped two or three times for a few hours to pack the different steam valves.

The Gaskill engines have had some repairing. The high-pressure pins are so badly worn that they will have to be replaced with new ones.

The "'67" engine was stopped in October, 1888, for compounding, which has since proved to be an entire failure. In August last the engine was tested, and showed a loss of sixteen per cent. in the pumps. It was stopped in December and changed back to its former condition. On the completion of the change, the engine was started again the fourth of the present month, and since then has been running every day and giving entire satisfaction.

In compiling and preparing this report, I am greatl indebted to S. W. Fuller, the former clerk, who i once more connected with these works, for his untirin zeal in writing up the records and bringing them dow to the first of the present year, thus enabling me t give you the tables and other data left out.

Very respectfully yours,

HENRY WELCH,

Chief Engineer North Pumping Works.

WEST PUMPING WORKS.

CHICAGO, January 30, 1890.

WM. R. NORTHWAY,
City Engineer.

DEAR SIR:—I herewith submit the Fourteenth Annual Report of the operation of the West Pumping Works, being for the year ending December 31, 1889.

ENGINES.

The four (4) engines located at these works have been running very steadily and during the year just closed, the only stoppage of any consequence being during the months of November and December, when Engines 25 and 26 were shut down for two weeks alternately for general overhauling. About the usual amount of wear was observable in the wearing parts.

The old composition rubber valves in main water pumps of Engines 25 and 26 have been replaced as fast as practicable by a rubber valve of better quality; it is of genuine rubber. The first of this kind was placed in the pump of Engine 25 on August 5, 1889, and is still in good order.

The majority of the valves in those pumps are of this kind, and up to date no sign of tearing is noticeable which was the main defect in the old valves. While possessing advantages in other ways as regards better action in the pumps, etc., the cost per set, as compared with the old ones is fifty ($50) dollars less, or a saving of over nine per cent.

BOILERS.

The boilers are in good condition and have received about the usual amount of repairs during the year. Six (6) new feed-water coils have been attached to the boilers in the south boiler room in place of the six (6) old ones previously taken out. It will be necessary during the coming year to put five new mud drums on the old or 1876 boilers, to replace the old ones which are pretty well worn.

OPERATIONS OF ENGINES AND BOILERS AT WEST PUMPING WORKS IN 1889.

MONTHS. 1889.	No. of Days Run.	No. of Hours Run per Month.	Average No. of Hours per Day.	Total Revolutions Made per Month.	Average No. of Revolutions per Day.	Total No. of Gallons of Water Pumped per Month.	Average No. of Gallons Pumped per Day.	Pounds of Coal Consumed per Month for Pumping.	Average No. of Pounds per Day for Pumping.	Pounds per Month for Changing Boilers.	Pounds Charged to Heating, Building, Etc.	Total Pounds of Coal Consumed per Month.	Average Head against Pumps in Feet.	Duty in Million-Foot Pounds.
		H.	H.											
January	31	744	24	1,785,650	57,600	1,839,421,280	59,336,170	2,548,950	80,930	4,000	533,200	3,086,150	107.6	65,100,000
February	28	672	24	1,786,400	63,800	1,840,831,460	65,743,980	2,558,400	91,371	4,500	481,600	3,044,500	105.3	63,800,000
March	31	744	24	1,909,892	61,604	1,968,670,580	62,859,708	3,034,900	97,706	6,000	533,200	3,574,100	106.1	57,800,000
April..........	30	720	24	1,817,488	60,583	1,872,808,120	62,464,255	2,807,600	93,586	2,000	....	2,809,600	103.4	57,900,000
May............	31	744	24	1,879,450	61,270	1,938,238,900	62,523,870	2,886,050	93,097	4,000	....	2,890,050	103.9	58,575,230
June	30	720	24	1,810,090	60,336	1,865,123,200	62,170,770	2,632,450	87,748	8,000	....	2,640,450	104.2	62,175,120
July	31	744	24	1,890,467	60,983	1,948,648,580	62,859,630	2,891,850	93,285	6,000	....	2,897,850	104.4	59,520,000
August..	31	744	24	1,870,674	60,341	1,927,588,680	61,535,110	2,818,150	90,908	7,200	....	2,825,350	106.5	61,406,530
September.... ..	30	720	24	1,795,322	59,844	1,849,918,760	61,663,950	2,674,800	89,160	4,600	....	2,679,400	106.7	61,928,780
October	31	744	24	1,840,904	59,385	1,895,716,760	61,152,100	2,908,800	93,830	10,400	....	2,919,200	110.8	60,564,100
November	30	720	24	1,605,145	53,505	1,659,399,160	55,313,300	2,854,500	95,150	3,000	....	2,857,500	108.3	53,193,780
December	31	720	24	1,642,994	52,999	1,699,227,920	54,813,800	2,834,100	91,423	4,800	21,700	2,860,600	104.7	52,673,000
TOTALS.....	365	8,760	....	21,634,476	....	22,305,593,400	....	33,450,550	....	64,500	1,569,700	35,084,750	......	....
Average per Month....	...	730	....	1,802,870	....	1,858,000,000	....	2,787,543	....	5,375	....	....	106.0	59,553,000
Average per Day.	...	......	24	....	59,354	....	61,036,387	....	91,516	177	....	....	......	....

During the months of January, February and March of 1889, there was charged to heating buildings, shops in pipe yard, etc., coal at the rate of $8\frac{1200}{2000}$ tons daily, or an aggregate of 774 tons during these three months, which is largely in excess of the amount necessary for that purpose. If seven-eighths of this coal was charged to pumping, it would lower the duty for those three months considerably, and also the general average during the year.

The following table shows the cost of repairs of engines and boilers, cost of repairs per million gallons, average cost of coal per ton, total cost per million gallons pumped, and cost of pumping one foot high, up to December 31, 1889:

YEAR.	Gallons Pumped.	Head against Pump in Feet.	Cost of Repairs of Engines and Boilers.	Cost of Repairs per Million Gallons.	Average Cost of Coal per Ton.	Total Cost per Million Gallons.	Cost of Pumping one Million Gallons 1 foot high.
1877..........	7,088,127,000	109.0	$1,123 61	$0 $15\frac{85}{100}$	$5 22	$6 66	$0 $06\frac{11}{100}$
1878..........	8,418,918,000	106.0	583 66	0 $06\frac{93}{100}$	3 67	5 45	0 $05\frac{14}{100}$
1879..........	9,404,588,000	101.0	1,879 70	0 $23\frac{19}{100}$	2 62	5 02	0 $04\frac{98}{100}$
1880..........	8,648,673,000	98.3	366 96	0 $04\frac{24}{100}$	3 60	5 15	0 $05\frac{24}{100}$
1881..	9,572,845,000	90.0	1,100 18	0 $11\frac{38}{100}$	3 60	5 25	0 $05\frac{83}{100}$
1882..........	10,000,750,000	88.2	854 90	0 $08\frac{64}{100}$	3 90	5 00	0 $05\frac{68}{100}$
1883..........	10,376,678,000	85.1	2,345 63	0 $22\frac{60}{100}$	4 10	5 09	0 $05\frac{98}{100}$
1884..........	13,880,938,680	90.5	1,285 53	0 $09\frac{26}{100}$	2 96	4 96	0 $05\frac{48}{100}$
1885..........	19,447,521,980	105.0	2,002 11	0 $10\frac{28}{100}$	3 35	4 95	0 $04\frac{77}{100}$
1886..........	19,454,388,260	100.9	2,634 62	0 $13\frac{60}{100}$	3 18	4 80	0 $04\frac{75}{100}$
1887..........	20,045,528,600	97.3	3,648 03	0 $18\frac{19}{100}$	3 10	4 49	0 $04\frac{61}{100}$
1888..........	21,046,189,980	100.5	1,675 99	0 $07\frac{96}{100}$	3 31	4 65	0 $04\frac{63}{100}$
1889..........	22,305,593,400	106.0	1,859 27	0 $08\frac{33}{100}$	3 27	4 59	0 $04\frac{61}{100}$

The number of gallons of water pumped is about 1,259,000,000 more than last year, or about six per cent. increase. The cost per million gallons pumped is slightly in excess of the last few years, due in a great measure to the increased average head against the pumps during the year, but the cost per million gallons per feet head will compare favorably with those years.

The following table shows the total quantity of water pumped and the hours run by the four (4) engines, respectively:

Engine Designated as	Hours Run.		Revolutions Made.	Total Gallons of Water Pumped.
	Hours.	Minutes		
No. 25	7,881	15	5,208,112	5,208,112,000
No. 26	7,928	00	5,241,074	5,241,074,000
No. 50	8,266	20	5,588,626	5,923,943,560
No. 51	8,238	00	5,596,664	5,932,463,840
TOTALS	32,308	35	21,634,476	22,305,593,400

TABLE SHOWING QUANTITY OF WATER PUMPED EACH MONTH DURING THE PAST THIRTEEN YEARS.

MONTHS.	1877.	1878.	1879.	1880.	1881.	1882.	1883.
January	863,507,000	663,352,000	845,958,000	579,725,000	885,170,000	765,040,000	937,631,000
February	630,355,000	585,950,000	775,107,000	626,542,000	800,886,000	740,278,000	840,848,000
March	454,972,000	660,264,000	846,632,000	696,280,000	866,546,000	806,646,000	905,736,000
April	422,888,000	793,902,000	823,126,000	683,913,000	797,300,000	821,658,000	881,055,000
May	473,630,000	781,498,000	858,911,000	720,602,000	845,572,000	852,296,000	913,965,000
June	485,779,000	800,213,000	820,662,000	727,172,000	812,954,000	826,842,000	892,912,000
July	618,043,000	789,700,000	738,578,000	794,964,000	876,338,000	858,186,000	929,824,000
August	666,266,000	784,651,000	735,461,000	828,475,000	892,158,000	864,874,000	941,678,000
September	635,651,000	721,236,000	675,686,000	717,349,000	843,576,000	832,256,000	909,998,000
October	624,664,000	687,267,000	688,678,000	734,456,000	579,467,000	866,076,000	931,694,000
November	599,707,000	486,168,000	764,259,000	722,878,000	574,679,000	859,408,000	519,437,000
December	612,665,000	664,717,000	831,580,000	816,317,000	798,199,000	918,190,000	772,400,000
TOTALS	7,088,127,000	8,418,918,000	9,404,588,000	8,648,678,000	9,572,845,000	10,000,750,000	10,876,678,000

MONTHS.	1884.	1885.	1886.	1887.	1888.	1889.
January	955,490,000	1,764,123,000	1,740,996,200	1,868,598,900	1,787,829,080	1,839,421,280
February	889,546,000	1,658,860,700	1,554,614,760	1,672,601,080	1,687,609,320	1,840,831,460
March	954,418,000	1,748,143,220	1,631,985,000	1,813,521,100	1,821,494,000	1,968,670,580
April	930,908,000	1,498,356,720	1,393,069,720	1,714,681,520	1,747,594,960	1,872,808,120
May	952,907,000	1,632,207,920	1,614,370,400	1,767,735,680	1,837,128,500	1,938,238,900
June	926,524,000	1,596,137,620	1,615,050,600	1,688,071,560	1,796,657,340	1,865,123,200
July	1,061,390,500	1,729,898,200	1,669,581,840	1,765,820,140	1,893,185,700	1,948,648,580
August	1,482,553,340	1,675,467,160	1,684,536,560	1,690,814,360	1,880,680,140	1,927,588,680
September	1,404,673,420	1,593,727,920	1,646,232,280	1,563,724,400	1,770,456,380	1,849,918,760
October	1,381,246,760	1,592,069,440	1,658,388,920	1,418,456,880	1,825,336,800	1,895,716,760
November	1,316,406,000	1,477,747,780	1,559,988,160	1,462,948,640	1,411,258,000	1,659,399,160
December	1,624,570,660	1,480,781,700	1,685,573,820	1,618,554,340	1,586,959,760	1,699,227,920
TOTALS	13,880,933,680	19,447,521,980	19,454,388,260	20,045,528,600	21,046,189,980	22,305,593,400

As soon as the condition of affairs after May 8 would permit, the amount of coal in the shed was carefully measured and found to contain thirty-seven tons. According to the book account, there should have been 163 tons. This will reduce the quantity of coal on hand January 1, 1889, to $759\frac{1000}{2000}$ tons, and this is all the report will show. Since May 8, the quantity of coal burned, and the coal on hand, balance with the quantity received.

Coal has been received and used in 1889 as follows:

COAL RECEIVED.

	Tons.	Pounds.
On hand January 1, 1889,	759	1,000
Received from Weaver, Tod & Co.—		
Youghiogheny lump....	8,440	50
Youghiogheny nut......	5,688	1,860
Indiana block..........	66	600
Briar Hill nut..........	152	650
Hocking nut...........	326	1,450
Received from Daniel Corkery—		
Indiana lump..........	2,081	1,130
Miscellaneous coals from other firms..........	231	1,550

COAL USED.

	Tons.	Pounds.		
Pumping	16,725	550		
Changing boilers	32	500		
Charged to heating building shop in pipe yard, etc., January, February, March, 1889	784	1,700		
On hand January 1, 1890,	204	1,540		
Total	17,747	290	17,747	290

EXPENSES DUE TO PUMPING, 1889.

Salaries	$44,364 64
Coal, 16,757$\frac{1050}{2000}$ tons	54,931 74
Cylinder oil, 1,457 gallons	1,016 79
Lard oil, 147½ gallons	82 64
Kerosene, tallow, etc.	63 97
Grease (lubricant), 4,084¼ pounds	352 81
Gas, 1,469,600 cubic feet	1,603 54
Waste, 5,823 pounds	497 17
Repairs to engines and pumps	1,391 64
Repairs to boilers	467 63
Fire brick and clay	292 00
Fire tile	262 73
Rubber and packing	250 22
Rubber valves (main pumps)	1,081 61

Pipes and fittings	$475 55
Castings (grate bars, etc.)	352 13
Blacksmithing (fire tools, etc.)	336 24
Hardware, etc.	413 03
Feed water coils	522 00
Sundries (small stores)	491 55
Total	$109,249 63
Due to construction and repairs on building and grounds	5,634 67
Cost of coal, charged to heating building, etc	2,770 43
Grand total	$117,654 73

Number of gallons of water pumped during the year	22,305,593,400
Total cost of pumping	$109,249 63
Cost to pump one million gallons	$4 89
Average head against pumps during year in feet	106 ft.
Cost of delivering water per million gallons one foot high	$10 04$\frac{61}{100}$
Cost of repairs of engines and boilers per million gallons	$0 08$\frac{34}{100}$
Distributed as follows:	
To engines	$0 06$\frac{84}{100}$
To boilers	$0 02$\frac{10}{100}$

The following table shows the cost of delivering water per million gallons during the past thirteen years and the average cost of coal at the works:

YEARS.	Cost of Coal per Ton.	Total Cost per Million Gallons.
1877	$5 22	$6 66
1878	3 67	5 45
1879	2 62	5 02
1880	3 60	5 15
1881	3 60	5 25
1882	3 90	5 00
1883	4 10	5 09
1884	2 96	4 96
1885	3 35	4 95
1886	3 18	4 80
1887	3 10	4 49
1888	3 31	4 65
1889	3 27	4 89
Average thirteen years	$3 53	$5 10

BUILDING AND GROUNDS.

It would be advisable during the coming year to paint the outside of the building. It is now in its fifteenth year and has never been painted. While it would add considerable to its outward appearance it would more especially preserve it from going to decay. Otherwise the building and grounds around the same are in good order.

Assistant Engineers Sanborn, Mason and Turnbull have been prompt and faithful in the discharge of their duties, and taken altogether the working force, as at present constituted, gives general satisfaction.

Respectfully submitted,

JAS. STEWART,

Chief Engineer West Pumping Works.

SIXTY-EIGHTH STREET WATER WORKS.

CHICAGO, January 20, 1890.

W. R. NORTHWAY, ESQ.,
City Engineer.

DEAR SIR:—Herewith please find report of the operations and expenditures of the Sixty-Eighth Street Water Works for the year ending December 31, 1889:

Salaries of employes	$10,289	80
3,255 tons coal, at $2.70	8,788	50
486 tons coal, at $1.78	865	08
Lubricating and lighting oils	535	64
Pipe and pipe fittings	915	71
Tools	203	33
Sundry supplies	1,720	45
Waste and cleaning material	170	75
	$23,509	26
Deduct coal on hand January 1, 1890, 200 tons at $1.78	356	00
Total expense	$23,153	26

The following table will show the amount of water pumped each month during past year—175 feet head:

January	239,431,822
February	233,594,552
March	251,543,750
April	242,305,976
May	276,395,817
June	265,348,388
July	320,501,639
August	342,482,958
September	320,540,341
October	314,519,398
November	265,502,464
December	280,897,290
Total water pumped	3,353,064,395

Total cost	$23,153	26
Total cost coal used	9,297	58
Total cost per million gallons pumped.	6	90
Total cost pumping 1,000,000 gallons one foot high		$03\frac{94}{100}$
Cost of coal per million gallons pumped,	2	77
Cost of coal pumping 1,000,000 gallons one foot high		$01\frac{58}{100}$

The foregoing is the report of the Hyde Park station, and the following is the report of Lake station, given in the same form:

Salaries of employés	$12,272 70
4,254 tons coal, at $3.24	13,782 96
526 tons coal, at $2.97	1,562 22
Lubricating and lighting oils	132 52
Pipe and pipe fittings	371 08
Waste and cleaning material	177 89
Tools	11 60
Sundry supplies	1,178 68
	$29,489 65
Deduct coal on hand January 1, 1890, (150 tons, at $2.97)	445 50
Total expense	$29,044 15

The following will show the amount of water pumped during the past year—175 feet head:

January	321,811,052
February	289,688,412
March	313,098,386
April	312,116,734
May	396,079,774
une	407,339,194
uly	477,167,164
ugust	475,347,000

September	462,000,576
October	402,652,500
November	447,305,340
December	435,107,760
Total	4,739,713,892

Total expense	$29,044	15
Total cost coal used	14,899	68
Total cost per million gallons pumped,	6	12
Total cost pumping 1,000,000 gallons one foot high		03 $\frac{49}{100}$
Cost of coal per million gallons	3	14
Cost of coal pumping 1,000,000 gallons one foot high		01 $\frac{79}{100}$

Respectfully submitted,

ROBERT HAWKINS,

Chief Engineer Sixty-eighth Street Water Works.

LAKE VIEW PUMPING WORKS.

CHICAGO, January 15, 1889.

WM. R. NORTHWAY,
City Engineer.

SIR:—I herewith submit the Annual Report of the operation of the Lake View District Pumping Works for the year ending December 31, 1889.

The three engines are in good condition, with the exception of the Gaskill, which will require a small amount of repairs on water ends, caused by sand in the water.

The engines are one Gaskill, twelve millions (12,000,000); one Worthington, five millions (5,000,000); one Flanders, two millions (2,000,000).

You will see by the following table that the demand for water is so great in the summer that it is necessary to run the twelve millions (12,000,000) pump constantly through these months, as the capacity of the Worthington and Flanders are not large enough together to meet that demand. Therefore, if the Gaskill pump had to be stopped for repairs through these dry months, it would be impossible to supply the people in the district with the smaller pumps.

The greatest amount of water pumped in one (1) month (August) was 246,693,820 gallons.

The smallest amount of water pumped in one (1) month (February) was 151,901,503 gallons.

The greatest amount of water pumped in one day was on August 23—9,569,999 gallons.

The smallest amount of water pumped in one day was on February 3—4,569,705 gallons.

The following tabulated record exhibits in detail the operation of these works for year ending 1889:

MONTHS. 1889.	No. of Days Run.	Total Revolutions per Month.	Average No. of Revolutions per Day.	Total No. of Gallons of Water pumped per Month, less 5⅔ per cent. for loss of action.	Average No. of Gallons of Water Pumped per Day, less 5⅔ per cent. for loss of action.	Pounds of Coal Consumed per Month for Pumping.	Average No. Pounds of Coal Consumed per Day for Pumping.	Total No. Pounds of Coal Consumed per Month.
January	31	1,003,497	32,367	154,293,514	4,973,984	386,000	12,451	398,000
February	28	311,013	11,107	151,901,503	5,453,625	226,000	8,071	238,000
March	31	874,228	28,200	182,116,972	5,874,741	374,500	12,080	386,500
April	30	1,170,626	29,220	182,420,526	6,080,684	421,000	14,033	433,000
May	31	697,864	22,511	177,421,196	5,723,264	332,500	10,725	344,500
June	30	380,009	12,666	178,785,193	5,959,506	252,000	8,400	264,000
July	31	483,969	15,611	171,875,197	6,189,522	275,500	8,887	287,500
August	31	639,327	20,623	246,693,820	7,957,865	359,000	11,716	371,000
September	30	552,558	18,418	211,698,789	7,056,626	351,500	11,580	363,500
October	31	613,374	18,786	193,584,380	6,243,496	391,000	12,612	403,000
November	30	776,427	25,800	197,325,551	6,577,511	309,500	10,316	421,500
December	31	898,442	29,014	194,976,783	6,289,572	342,500	11,048	454,500
TOTAL	365	8,401,341	......	2,262,757,424	....	4,016,000	......	4,365,000
General Average per Month	...	703,445	......	188,568,118	....	351,333	......	....
General Average per Day	...	....	27,124	....	6,199,340	....	11,545	....

The following table will show the amount of water pumped, hours run and duty by the Gaskill pump, and the Worthington and Flanders together:

Engines.	Hours Run.		Revolutions.	Coal.	Total Amount of Water Pumped.	Duty.
	Hrs.	Min.				
Gaskill	6,043	40	2,855,806	2,064,000	1,674,974,119	61,500,000
Worthington and Flanders.	2,711	20	5,554,535	1,952,000	587,783,305	33,500,000
TOTAL				4,016,000	2,262,757,424	

BOILERS.

The four boilers at the works, newly erected this spring, are in good condition, but the smokestack is too small for the boilers ; as the diameter of the stack is thirty-six inches, it is not large enough to work to advantage for the two boilers. A new concrete floor in the boiler-room is much needed, to take the place of the brick one, which is in bad condition.

EXPENSES DUE TO PUMPING, 1889.

Salaries	$8,100 00
Coal	7,650 25
Cylinder oil (730 gallons)	438 00
Lard oil (108 gallons)	54 40
Lubricating compound (1,360 gallons)	185 40
Cotton waste (1,000 pounds)	90 0
Hardware	36[illegible] 0
Miscellaneous	15[illegible]
Total	$16,70[illegible]

The number of gallons of water pumped during the year 1889 was 2,262,757,424 gallons.

Cost of pumping one million (1,000,000) gallons was $7.38.

Assistant Engineers Staley, Miller, Jordan and all other employés at the works have been faithful in the discharge of their respective duties.

Respectfully submitted,

FRED. D. PARKER,

Chief Engineer Lake View Pumping Works.

The following Reports of experts on the tests of the "'67" engines, before and after the change from a compound to the former style of low pressure engines, will be found of interest:

CHICAGO, Ills., August 21, 1889.

W. H. PURDY, ESQ.,
Commissioner Public Works:

SIR:—A committee composed of members of the National Association Stationary Engineers, and other engineers, began a series of tests of the "'67" engine at the North Chicago pumping works on July 16, which have been continued from time to time, until now they are ready to report. The final test was made on July 17 and 18, which continued for twenty-four hours, and was carried out in the following manner: The committee was divided into two watches. One man was stationed in the boiler-room to superintend weighing the coal and watch the firing. Another was stationed at the weighing tank to weigh the feed-water for the boilers and note its temperature. Two men took indicator cards; one man took reading of the revolution counter and steam and vacuum gauges; one man watched the gate-valve leading from the main to the weir, to see that the gauge showed a constant pressure equal to the required head; one man was placed at the hook-gauge of the weir, and another at the check-gauge on the opposite side of the weir. Memoranda were taken at each station every fifteen minutes. This engine consisted originally of two low pressure cylinders, each forty-four inches diameter by eight feet stroke, which have since been compounded in the following manner: A twenty-six inch cylinder was dropped into the old forty-four inch cylinder, leaving an annular space of about 7.5 inches all around. This space communicates with and is a part of the receiver. The piston-rod of each cylinder extends through the bottom, and is attached to and drives the pump-pistons, which are each 28.5 (nearly) inches in diameter by eight feet stroke. An average of all the indicator cards, 150 in number, showed the following: Mean effective pressure at top of high pressure cylinder, 31.67 pounds; mean effective at bottom of high pressure cylinder, 38.205 pounds; average mean effective pressure in high pressure cylinder, 34.938 pounds; area of high pressure cylinder, 530.93 square inches; area of rod, 15.9; engine constant, 2.713; indicated horse-power of high pressure cylinder, 94.786 at 10.7 revolutions per minute. Area of low pressure cylinder, 1520.55; area of rod, 15.9; mean effective pressure in top of low pressure cylinder, twenty-five pounds; bottom of low pressure cylinder, 33.158; average mean effective pressure in low pressure cylinder, 29.079; engine constant, 7.805; indicated horse-power low pressure cylinder, 226.961; total horse-power of engine (both cylinders), 321.747. As the engine was originally constructed, the power would be evenly divided between the engine and pump-piston, and there would be no unequal strain on the pins, connecting-rods or walking-beams, such as is now the case, since the engine has been compounded, the high pressure cylinder being capable in its present condition of exerting only about twenty-nine per cent. of the total power of the engine. The low pressure cylinder, while pushing its pump-piston through its stroke, imparts a large per cent. more power to it than is necessary to drive it against its load, which surplus of power must be communicated to the fly-wheel by means of the connecting-rods, walking-beams, crank-pin and shaft, to be given off, through the same round-about route, to the pump-piston under the small high pressure cylinder. This unequal distribution of force may account to a considerable extent, for the difference between the indicated power of the engine and the work actually done by the pumps, as will appear by the following comparisons: Indicated horse-power of engine, 321.747; work done by weir measurement, in measures of a horse-power, 271.909. This discrepancy may be further accounted for by the contracted valve openings, a considerable percentage of the power of the engine being undoubtedly expended in forcing the water through the contracted openings in the valve-seats of the pumps. The ratio of the pump area to the valve area being 2.8, the weir measurements were read off on an Emerson hook-gauge divided into thousandths of a foot and computed by tables based on the Francis formula, which is calculated from the natural flow of water, viz., three feet and four inches per second. The weir dam was of such ample size that, by means of racks and brakes, we were able to get still water about four feet back from the crest of the weir. A check-gauge was placed on the opposite side of the weir from the hook-gauge for the purpose of noting any difference of level, if any should occur. With the above arrangement a very accurate measure of the actual delivery of water has been obtained. The actual delivery of water over the weir was 1,263.08 cubic feet per minute; capacity of pumps, 1,507.08; difference, 344 cubic feet under a head of 114 feet; per cent. of loss or slippage, sixteen.

The pumps having internally packed pistons, their leakage could not be computed, which may account for a part of this slippage. Your committee would therefore recommend that the engine be restored to its original condition, that new valves be placed in the pumps of sufficient area to allow the pump barrels to fill when the engine is running at the proper speed. Then, with the pressure of sixty pounds per square inch of steam, the engine can be run at a greater speed, and will perform a much higher duty. The real duty of the engine, as shown by the water delivered over the weir, is now 46,621,651 foot pounds per 100 pounds of coal. The duty, as measured by the pump displacement at the speed the engine was run during the test, would be 55,422,000 foot pounds.

The boilers are two in number, of the horizontal return tubular type, made of steel, and are set in brick. The gases traverse a flue along the top of the boilers in reaching the chimney.

The boiler dimensions are as follows—

Diameter of shell	64 inches
Length of boiler	18 feet
Number of tubes	60
Outside diameter of tubes	4 inches
Total grate surface	60 feet
Total heating surface	2,700 feet
Ratio of grate to heating surface	45
Average steam pressure of boiler by gauge.	90.5
Temperature of feed-water	162° F.
Pounds of water evaporated	232,000
Pounds of coal burned	27,900
Pounds of ashes	2,338
Per cent. of ashes	9.08
Pounds combustible	25,562
Pounds coal burned per hour	1162.5
Pounds coal burned per square foot of grate surface per hour	19,375
Pounds water evaporated per pound coal	8.31
Pounds water evaporated per pound combustible	9.08
Pounds water per pound of coal, from and at 212°	9,066
Pounds water per pound of combustible, from and at 212°	9,906

Coal burned per horse-power per hour....	3,613
Water consumption per horse-power per hour..............................	30,024

The coal burned was large-sized Youghiogheny nut of good quality, bright and clean, and apparently dry.

The boiler performance was very good, the steam pressure was maintained very uniformly throughout the entire run, but the engine performance was very far short of good, modern practice. The accompanying diagrams are a fair average of all of the indicator cards taken during the test.

Respectfully submitted,

E. C. DICEY,
A. S. M. E., in charge of test.

JAS. R. MAXWELL,
N. A. S. E., Cincinnati, Ohio.

M. M. WALBRIDGE,
N. A. S. E., No. 1, Chicago.

A. BEMENT,
Master Steam Fitter.

A. ERICKSON,
N. A. S. E., No. 1, Chicago.

CHAS. W. MILLS,
N. A. S. E., No. 2, Chicago.

THOS. J. HOLMES,
Marine Engineers' Association.

CHAS. F. WITTMEYER,
N. A. S. E., No. 2, Chicago.

MATTHEW NOBLE,
N. A. S. E., No. 2, Chicago.

C. W. WELLSTEAD,
N. A. S. E., No. 2, Chicago.

J. E. BECKERLEG,
N. A. S. E., No. 1, Chicago.

JOSEPH BINKS,
N. A. S. E., No. 1, Chicago.

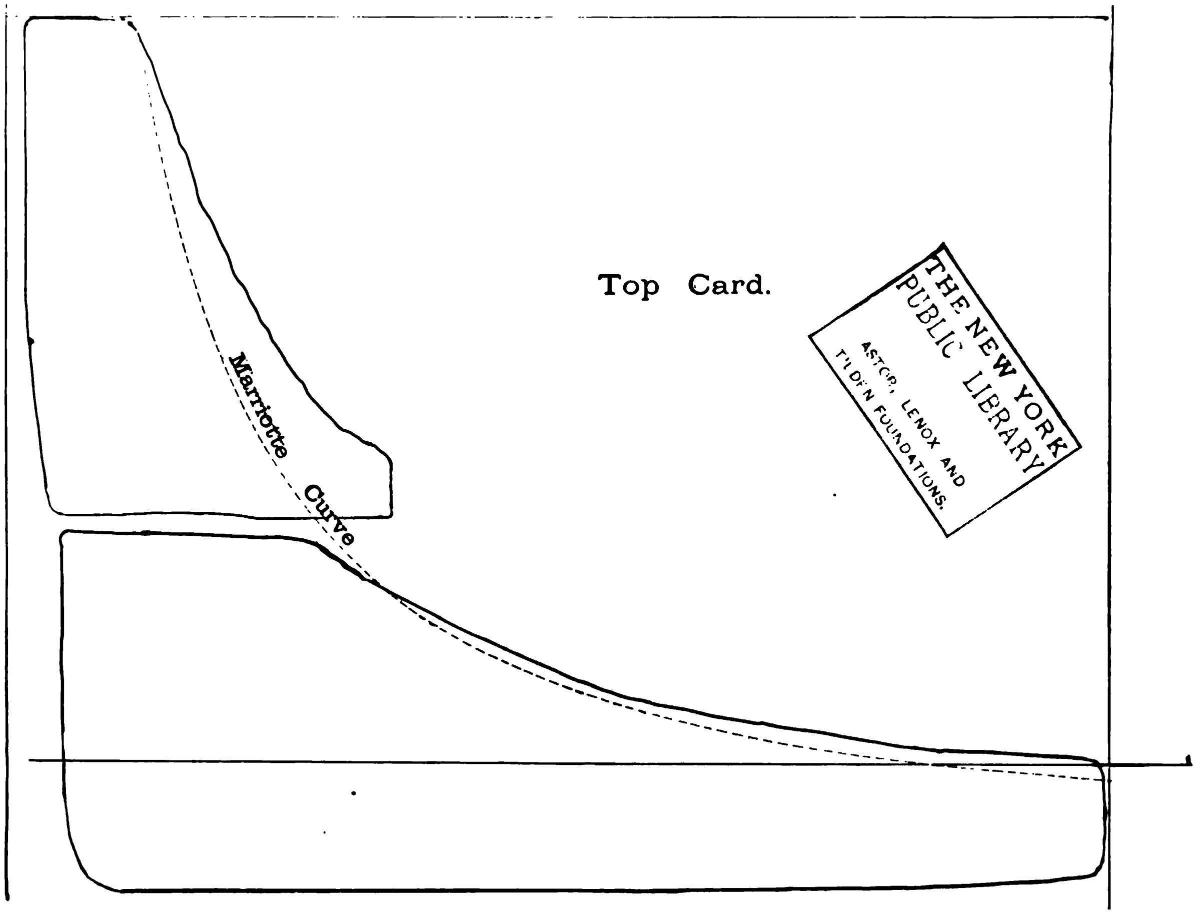
P. S. KINGSLAND,
Western Mgr. Phœnix Iron Works, Chicago.

EDWARD BARRETT,
Independent Order of Engineers.

C. F. DUNDERDALE,
Westinghouse Co.

67 Engine

NORTH SIDE PUMPING WORKS.



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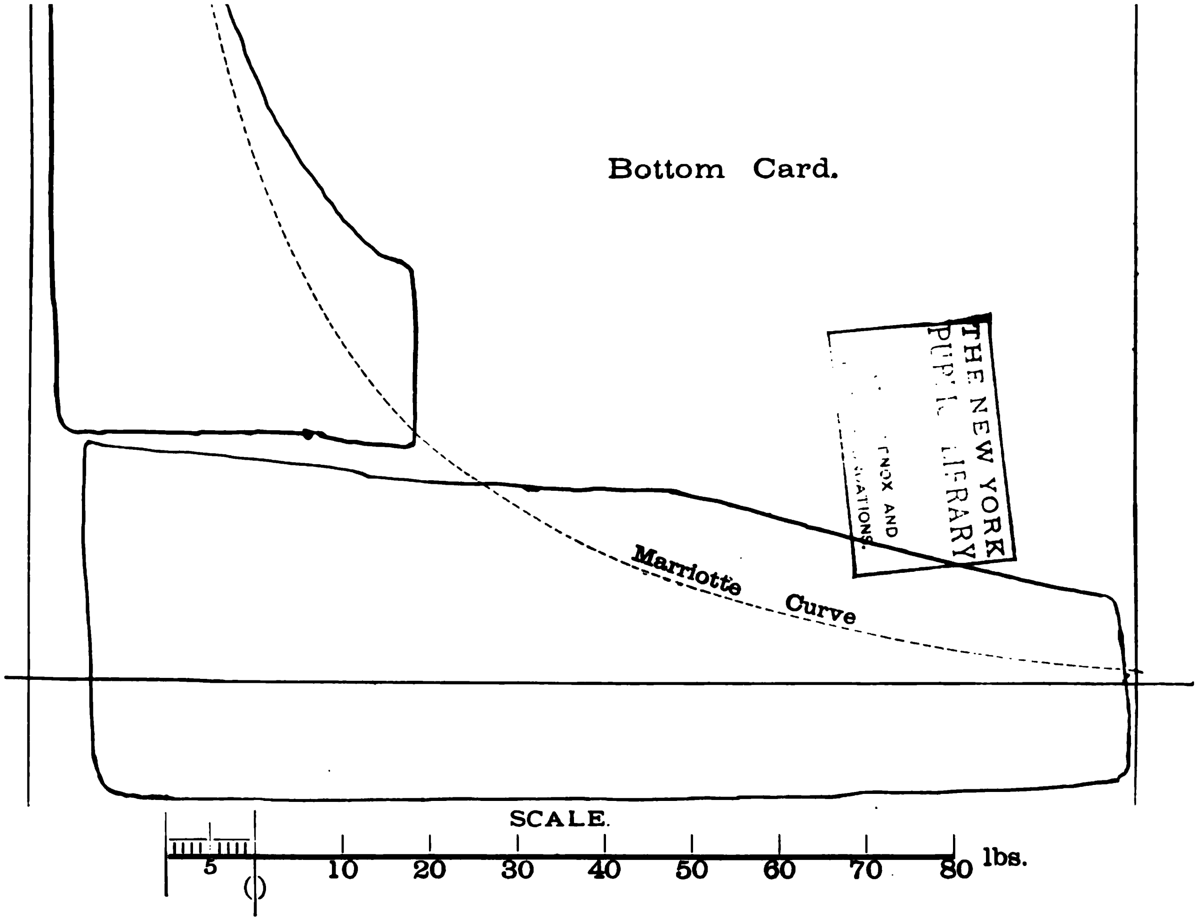

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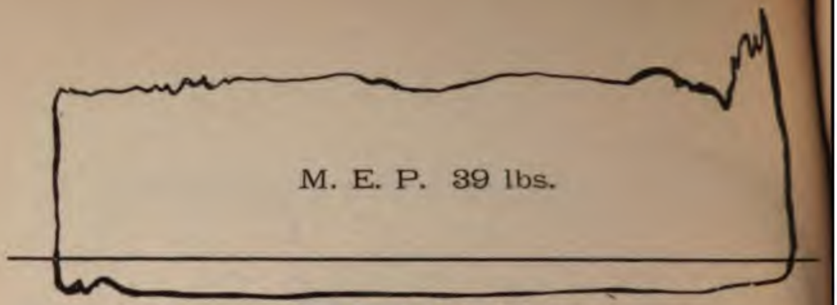
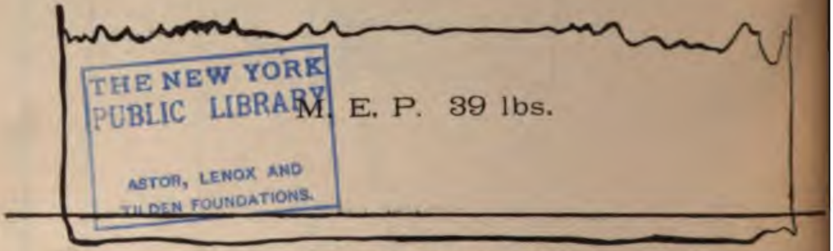


Top of North Pump.



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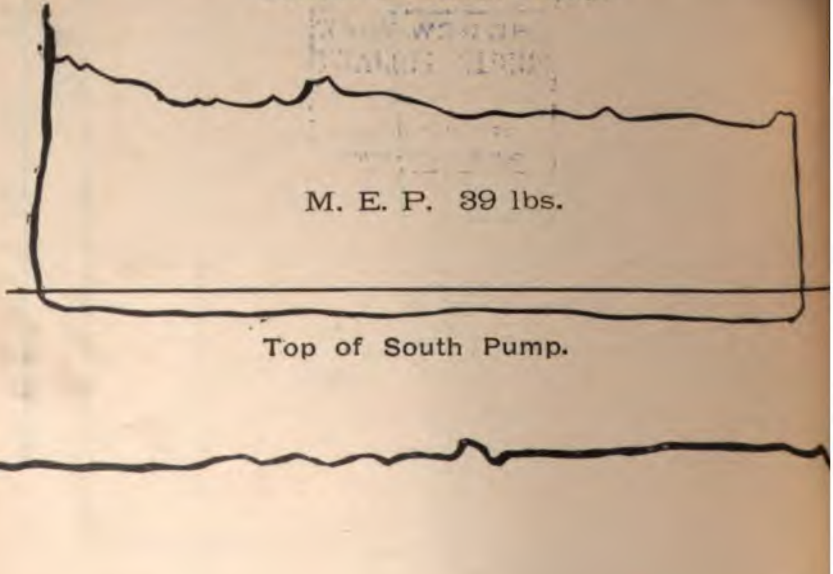
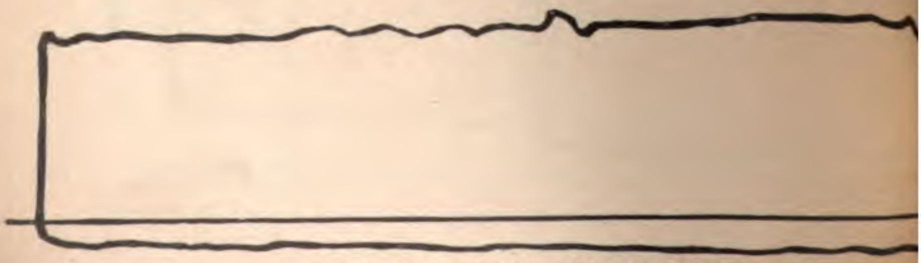
Bottom of North Pump.



Top of South Pump.



Bottom of South Pump.

Fig. 3.

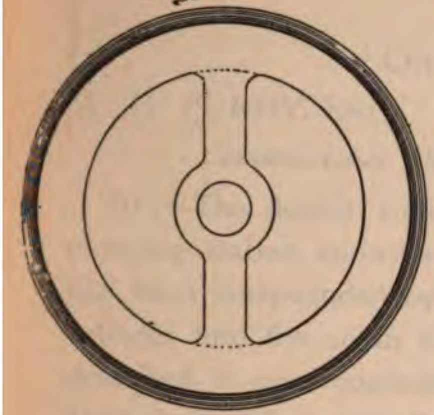


Fig. 1.

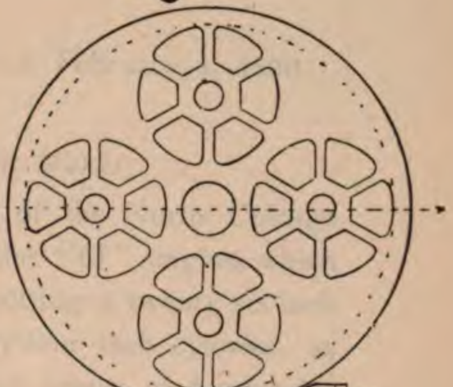
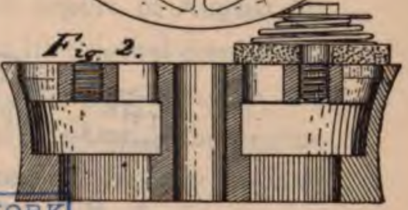
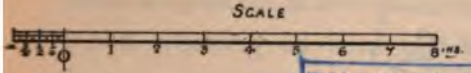


Fig. 2.





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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

Fig. 4.

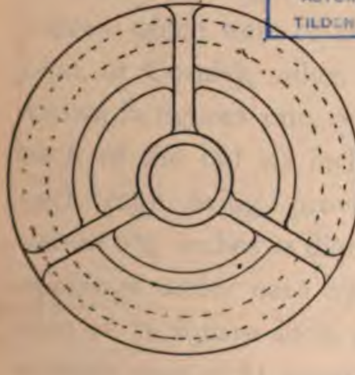
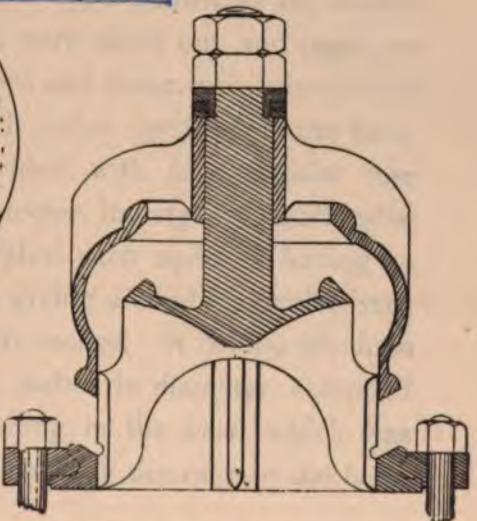


Fig. 5.



1, 2 AND 3, VALVES IN PUMP-ENGINE COMPOUNDED.
4 AND 5, VALVE IN PUMP-ENGINE RESTORED.

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

CHICAGO, February 4, 1890.

W. H. PURDY, ESQ.,
Commissioner Public Works:

SIR:—The double engine of the North Chicago pumping station, known as the "'67" engine, which had been compounded by putting a twenty-six inch cylinder into the south forty-four inch cylinder, as described in your committee's report of August 21, 1889 (having been restored to its original condition), a committee composed of, as nearly as possible, the same engineers who conducted the test of the engine when working as compounded, on January 25 and January 26, 1890, made a test of twenty-four hours duration under practically the same conditions.

When the engine was compounded, the old pump valves, which were of the type known as the double beat, or Cornish valve, were taken out, and cages, as shown in figures one, two and three, were placed over each of the old six-inch valve openings in the base, each cage being provided with four circular disc valves 3¼ inches in diameter, having six small radial openings under each valve, each opening having an area of ⅞ square inch, giving a combined valve area to each cage of 21 square inches. A bridge one inch wide, having a hub 2¼ inches in diameter, extended across the six inch opening in the base, which was used for the purpose of bolting the cage to the base.

An inspection of figures one and two will show into what small streams the water would be broken up, while passing through the tortuous openings, in forcing its way out from under the spring compressed rubber valves, one of which is shown in figure two. The resistance to the flow of water through these cages was so great that it was impossible for the pump-barrels to fill with the engines running at any time above a very moderate speed. In fact, during the first test, only 10.7 revolutions per minute could be gotten out of the engine with a gauge pressure of ninety pounds per square inch on the boilers, and then considerable air had to be admitted into the pump cylinders to prevent pounding, on account of the water not being able to follow the pistons through the whole stroke. When the engine was restored to its original condition these cages were taken out, and the bridges, which had been used to hold the cages down were removed from the base, leaving free six-inch openings to the valve seats, and new double-beat valves were substituted, as shown in the accompanying sketches marked four and five.

In the second test it was found that, with a gauge pressure on the boilers of from thirty to thirty-five pounds, the engines could be made to turn up to a speed of fifteen revolutions per minute with apparent ease. They were, however, checked down to the number of revolutions per minute shown below, that speed being sufficient to supply all the water that it was desirable to pump over the weir.

The test was conducted as follows: The committee was divided into three watches. One man was stationed in the boiler-room to superintend weighing the coal and watch the firing; another was stationed at the weighing-tank to weigh the feed-water for the boilers and note the temperature; three men took indicator cards from the engine and pump-cylinders; one man took readings of the revolution counter and steam and vacuum gauges; one man tended the gate-valve leading from the main to the weir, to see that the gauge showed a constant pressure equal to the required head; one man was placed at the hook-gauge. Memoranda were taken at each station every fifteen minutes during the twenty-four hour run.

ENGINE DATA.

The steam cylinders are forty-four inches in diameter by eight feet stroke.

Area of each cylinder.........	1520.53 square inches
Area of rod..................	15.9 square inches
Average revolutions per minute,	13.56
Piston speed per minute......	216.96
Mean effective pressure.......	22 pounds
Indicated horse-power........	430.9

PUMP DATA.

Total estimated capacity of pump in cubic feet per twenty-four hours, 2,751.840.

Estimated capacity of pump in pounds of water, at maximum density, in twenty-four hours, 171,990,000 pounds.

Head against pumps, 119.5 feet.

Cubic feet of water pumped by weir measurement, 2,428,068.9.

Efficiency of pump, 88.2 per cent. of estimated capacity, showing a loss of slippage of 11.8 per cent.

This slippage may be accounted for by the fact that the valves are so nearly balanced (no springs being used) that they do not close instantly at the commencement of the return stroke of the pistons, and a small quantity of water is forced past the valves before they are closed. The valves, however, work without shock or jar, and it is not recommended that any change be made in them.

BOILER DATA.

The boilers are two in number, of the horizontal return tubular type, set in brick, provided with the Murphy automatic stoker furnaces. The gases traverse a flue along the top of the boilers to the chimney. The boiler dimensions are as follows :

Diameter of shell..............	60 inches
Length of boiler.................	18 feet
Number of tubes................	60
Outside diameter of tubes.........	4 inches
Total grate surface.............	60 square feet
Total heating surface............	2,700 square feet
Ratio of grate to heating surface...	45
Average steam pressure of boiler by gauge..................	35 pounds
Total coal consumed in twenty-four hours......................	28,200 pounds
Ashes weighed back.............	3,876 pounds
Per cent of ashes................	13.7
Total combustible...............	24,324 pounds
Coal burned per hour............	1,175 pounds
Combustible per hour............	1,013.5 pounds
Total water evaporated...........	260,000 pounds
Average temperature of feed-water,	158° F.

Observed evaporation, 8.9 pounds to one of coal. Evaporation from and at 212° F., 9,895 pounds to one of coal.

The duty of the engine, as shown by the water delivered over the weir, per 100 pounds of coal, is 64,718,018 foot pounds, with a head of 119.5 feet, as against 46,621,651 foot pounds, with a head of 114 feet per 100 pounds of coal, shown by the test report of August 21, 1889, of the engines operating as compounded.

This difference of duty, and the economy shown, your committee believes, fully justifies the changes that have been made.

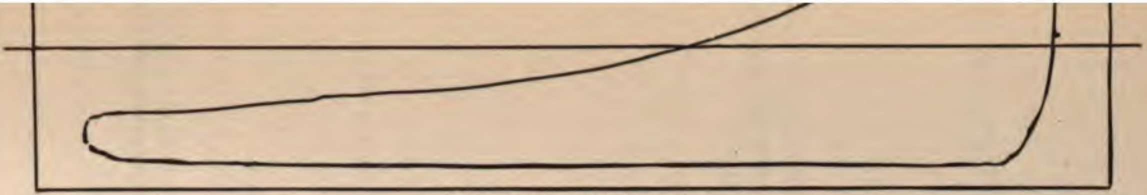
Respectfully submitted,

E. C. DICEY,
A. S. M. E.
JAS. R. MAXWELL,
C. E.
CHAS. DESMOND,
M. & E. E.
A. BEMENT,

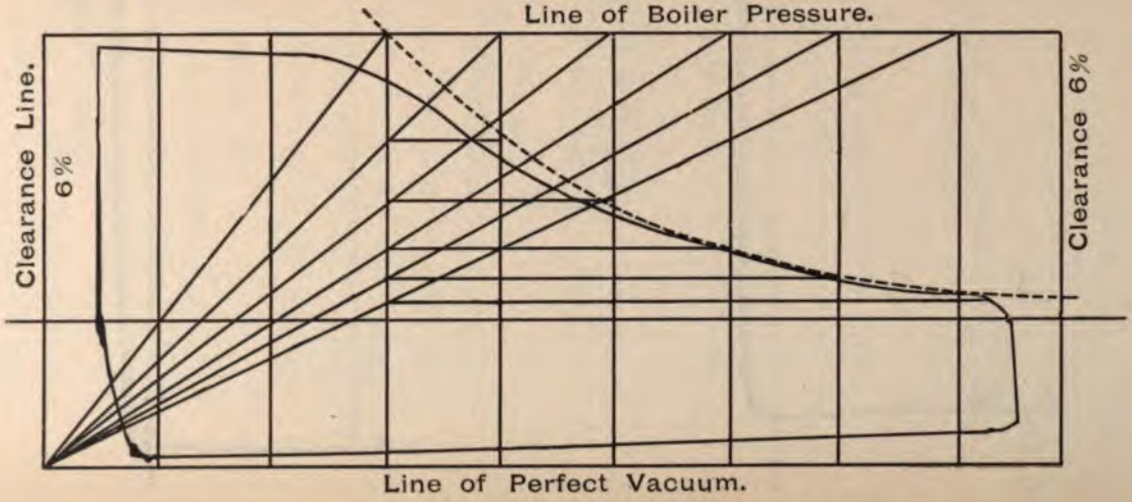
C. F. DUNDERDALE,
M. & E. E.
THOS. J. HOLMES,
M. E. B. A., No. 4.
ALBERT ERICKSON,
N. A. S. E.
J. E. BECKERLEG,
N. A. S. E.
JOSEPH BINKS,
N. A. S. E.
M. J. TIERNEY,
N. A. S. E.
GEO. E. MOREY,

HENRY CAMPBELL,
N. A. S. E.
C. F. WHITMEYER,
N. A. S. E.
E. B. MORANGE,

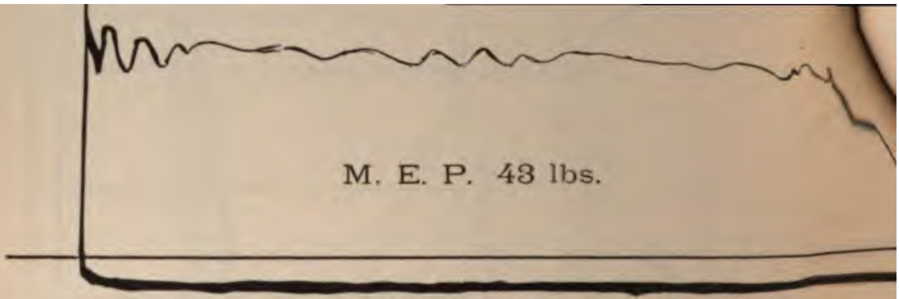
ED. BARRETT,
I. O. E.
M. M. WALBRIDGE,
N. A. S. E.



SCALE 20 LBS.



Line of Boiler Pressure.
Clearance Line.
6%
Clearance 6%
Line of Perfect Vacuum.



Top Pump Card.

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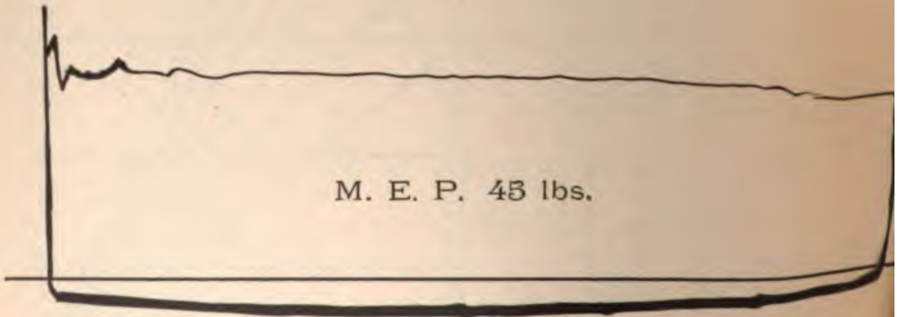

Lower Pump End.

WATER PIPE EXTENSION.

The amount of water pipe laid in the North, South and West Divisions is far greater than ever before in the history of the city, being about fifty-four miles.

The net increase in these divisions is $52\frac{4011}{5280}$ miles.

The amount of pipe laid at the expense of property owners in the North, South and West Divisions during the year was 12,730 feet, but little more than in 1888.

The total amount of pipe in use in the North, South and West Divisions at the close of 1889 was $729\frac{4360}{5280}$ miles; in Lake District, $135\frac{130}{5280}$ miles; in Hyde Park District, $126\frac{2304}{5280}$ miles; in Lake View District, $84\frac{4112}{5280}$ miles, making a grand total in use in the city of $1{,}076\frac{345}{5280}$ miles.

We have laid, during the year, 9,981 feet of 36-inch and 16,061 feet of 24-inch water main, which will be used in connection with the new pumps at Fourteenth street and Harrison street, and is not yet in service. During the coming year we will be obliged to lay much more to make the new works available, both at Fourteenth street and Lake View pumping station.

We have in service, in connection with the system in the North, South and West Divisions, 6,991 fire hydrants, eighty-four fire cisterns and 5,506 stop-valves; in Lake View District, 597 fire hydrants and 626 stop-valves; in Hyde Park District, 1,258 fire hydrants and 532 stop-valves; and in Lake District, 1,597 fire hydrants.

I cannot give, at present, the number of stop-valves in the Lake District, no record of them having been kept before annexation. I am having a survey made, which will not be completed for some time.

Water mains have been lowered in the following streets:

Burling, from Webster avenue to Seymour.

Howe, from Centre street to Garfield avenue.

Irving avenue, from Fulton to Kinzie.

Superior, from Robey to Hoyne avenue.

Western avenue, from Fulton to Lake.

Superior, from Hoyne avenue to Leavitt.

Hoyne avenue, from Emerson avenue to Chicago avenue.

Diller, from Fulton to Kinzie.

Ohio, from Robey to Hoyne avenue.

Emerson avenue, from Wood to Robey.

The following tabulated statement shows in detail the work done on water pipe extension during the year:

NORTH DIVISION.

STREET.	FROM	TO	Length of pipe in feet.	Size in inches.
Astor	Schiller	Northward	610	6
Bellevue place	Rush	State	110	4
Bellevue place	West crossing	Lake Shore drive	36	6
Eugenie	Larrabee	Mohawk	215	6
Dayton	Rees	Northward	436	6
Clay	West crossing	Fremont	42	6
Chestnut place	Chestnut	Delaware place	310	4
Chicago avenue	Pine	Eastward	190	4
Cherry avenue	South crossing	North avenue	15	4
Cedar	West crossing	Lake Shore drive	36	6
Garfield avenue	Fremont	Bissell	330	6
Garfield avenue	Sheffield avenue	Racine avenue	1,280	6
Gardner	Halsted	Vine	1,100	6
Fremont	Willow	Clay	808	6
Haines	Halsted	Hickory	617	6
Haines	West crossing	Halsted	24	6
Halsted	South crossing	Haines	12	6
Hammond	Tell court	Southward	210	4
*Illinois	St. Clair	Eastward	468	8
Lake Shore drive	Bellevue place	Cedar	300	6
Maple	Clark	Eastward	120	6
Rush	Oak	Cedar	568	8
Sheffield avenue	Webster avenue	Northward	260	8
Vine	Rees	Gardner	286	6
Weed	Smith	Westward	560	6
Walton place	Clark	Dearborn	315	8
		Total	9,258	
		Add branch pipe for hydrants	260	6
		Add branch pipe for hydrants	130	4
		Total feet laid in North Division	9,648	

---

*Expense of property, cost to be refunded when sufficient revenue is derived.

SOUTH DIVISION.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Arch	South crossing	Lyman	44	6
Archer avenue	Thirty-seventh	Blanchard avenue	2,141	8
Archer avenue	West crossing	Blanchard avenue	80	8
Blanchard avenue	Archer avenue	Thirty-fifth	2,598	8
Bonfield avenue	Lyman	Southward	46	6
Bross avenue	Western avenue	Ward avenue	405	6
Butterfield	Twenty-seventh	Twenty-sixth	504	8
Butterfield	North crossing	Twenty-fifth	25	6
California avenue	South crossing	Thirty-sixth	41	8
California avenue	Thirty-sixth	Thirty-ninth	1,920	8
Calumet avenue	Thirty-seventh	Northward	325	6
Calumet avenue	Eighteenth	Thirty-first	7,105	36
Central avenue	South Water	Randolph	825	6
Charlton	Thirty-fifth	Thirty-fourth	670	6
Daly	Douglas avenue	Southward	1,272	6
Eda	Michigan avenue	Indiana avenue	314	6
Eda	Wabash avenue	Michigan avenue	367	6
Eighteenth	Indiana avenue	Calumet avenue	783	36
Elias	North crossing	Lyman Avenue	30	6
Elias	Archer avenue	Southward	75	6
Elias	Lyman	Northward	264	6
Freeman	Western avenue	Westward	503	6
Grand boulevard	Douglas avenue	Southward	378	6
Harrison	Wabash avenue	Michigan avenue	370	12
Hart avenue	Thirty-eighth	Northward	300	6
Hart avenue	Archer avenue	Thirty ninth	500	6
Hoyne avenue	Thirty-third	Northward	660	8
Hudson	West crossing	Western avenue	28	6
Indiana avenue	Fourteenth	Eighteenth	2,145	36
James avenue	East crossing	Ullman	44	6
Joseph	Washtenaw avenue	Pierson avenue	2,667	6
Leggate avenue	South crossing	Thirty-eighth	48	6
Lowe avenue	Thirty-third	Southward	916	8
Lowe avenue	Thirty-first	Thirty-second	283	8
Lundy's lane	South crossing	Thirty-seventh	25	6
Marshfield avenue	South crossing	Thirty-fourth	43	6
Oakley avenue	Thirty-third	Southward	220	8
Oakley avenue	Thirty-fourth	Southward	337	6
Oakley avenue	Thirty-fifth	Northward	240	8
Oakley avenue	Thirty-fourth	Northward	440	8
Pierson avenue	North crossing	Thirty ninth	25	6
Pierson avenue	Thirty-ninth	Thirty-sixth	1,922	6
Portland avenue	Thirty-fifth	Thirty-seventh	620	6
Randolph	Michigan avenue	Central avenue	122	6
Sacramento avenue	Thirty-eighth	Southward	86	8
Shields avenue	Thirty-first	Thirty-second	706	6
Smith avenue	Blanchard avenue	Westward	350	6
Spring	Butterfield	Eastward	70	6

SOUTH DIVISION—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Spring	State	Dearborn	235	6
Spring	Dearborn	Butterfield	217	6
Springer avenue	East crossing	Waterville	25	4
Third avenue	Jackson	Van Buren	400	8
Third avenue	Van Buren	Harrison	800	8
Twenty-fifth place	Halsted	Emerald avenue	235	6
Twenty-fifth	Wentworth avenue	Butterfield	633	6
Twenty-seventh	Butterfield	La Salle	340	6
Twenty-seventh	Portland avenue	Eastward	642	6
Twenty-seventh	Butterfield	Dearborn	290	6
Twenty-seventh	Dearborn	State	250	6
Thirty-second	East crossing	Ullman avenue	45	6
Thirty-third	Yorktown	Oakley avenue	327	8
Thirty-fourth court	Lincoln	Westward	496	8
Thirty-fourth	Ashland avenue	Paulina	642	8
Thirty-fourth	Yorktown	Oakley avenue	330	8
Thirty-sixth	Ellis avenue	Lake avenue	340	6
Thirty-sixth	Boulevard	Pierson avenue	4,958	6
Thirty-sixth	Cottage Grove avenue	Ellis avenue	313	6
Thirty-seventh	Lincoln	Leavitt	2,211	8
Thirty-seventh court	Shields avenue	Westward	230	4
Thirty-eighth	Archer avenue	Kedzie avenue	4,775	8
Thirty-eighth	Wentworth avenue	La Salle	260	8
Thirty-ninth	Pierson avenue	Westward	370	8
Thirty-ninth	Pierson avenue	Eastward	400	8
Thirty-ninth	Blanchard avenue	California avenue	1,357	8
Van Buren	Wabash avenue	Michigan avenue	361	8
Vernon avenue	Egan avenue	Northward	282	6
Ward avenue	Bross avenue	Freeman avenue	605	6
Ward avenue	Thirty-sixth	Thirty-fifth	630	6
Washtenaw avenue	Egan avenue	Douglas avenue	2,579	6
Waterville	Springer avenue	Northward	473	8
Waterville	Springer avenue	Southward	219	8
Western avenue	Archer avenue	Douglas avenue	1,584	6
Western avenue	Thirty-fifth	Bross avenue	1,400	6
William	Blanchard	Washtenaw avenue	662	6
Winchester avenue	North crossing	Thirty-seventh	25	6
Alley south of Archer ave	Wallace	McGregor	368	4
	Total		64,091	
	Add branch pipe for hydrants		1,495	6
	Add branch pipe for hydrants		169	4
	Total feet laid in South Division		65,755	

WEST DIVISION.

STREET.	FROM	TO	Length of Pipe in feet	Size in inches.
Ada	Ohio	Erie	245	6
Albany avenue	Warren avenue	Madison	255	6
*Albany avenue	Ohio	North	287	6
Albany avenue	South crossing	Fulton	50	6
Albany avenue	South crossing	Twenty-second	36	6
Albany avenue	North crossing	Twenty-second	28	6
Albany avenue	Twelfth	Southward	88	6
Augusta	California avenue	Grand avenue	3,295	16
Barclay	Division	Southward	392	6
Berlin	Leavitt	Oakley avenue	650	6
Bismarck	Washtenaw avenue	Rockwell	820	6
Bismarck	California avenue	Eastward	490	6
Blanche	Ashland avenue	Dickson	245	6
Blanche	Dickson	Cleaver	621	6
Boulevard (east side)	Courtland	Bloomingdale avenue	624	6
Boulevard (south side)	Maplewood avenue	Hoffman avenue	331	6
Boulevard	California avenue	Westward	106	6
Boulevard	Forest avenue	Fairview avenue	838	6
Boulevard	Maplewood avenue	Myrtle avenue	708	6
Boulevard	Laurel avenue	California avenue	640	6
Boulevard (north side)	Myrtle avenue	Laurel avenue	295	6
Boulevard	South crossing	Twenty-second	36	6
Boulevard (east side)	Courtland	Northward	550	6
Boulevard	South crossing	Twenty-second	86	6
Boulevard (west side)	Bloomingdale avenue	Northward	410	6
Boulevard (east side)	North crossing	Twenty-second	26	6
Boulevard (west side)	North crossing	Twenty-second	26	6
Boulevard	Coulter	Laughton	654	6
Byron	Humboldt	Westward	375	6
Byron	Oakley avenue	Eastward	120	8
Burchell avenue	Fullerton avenue	Northward	640	8
California avenue	Fullerton avenue	Northward	670	12
California avenue	South crossing	Twenty-second	24	8
California avenue	Greenwood avenue	Diversey avenue	2,090	12
California avenue	Division	Augusta	1,278	16
*California avenue	Thomas	Southward	650	8
*California avenue	Fulton	Northward	100	8
California avenue	North crossing	Thirty-ninth	25	8
Campbell avenue	North crossing	Howard	29	6
Campbell avenue	Twelfth	Grenshaw	264	6
Campbell avenue	Taylor	Fillmore	325	6
Canal	Fulton	Lake	320	8
Carroll avenue	St. Louis avenue	Westward	435	6
Carroll avenue	Fortieth	Forty-fifth	8,474	6
Carroll avenue	Sangamon	Morgan	237	4
Carroll avenue	Sacramento	Westward	26	6
Carroll avenue	Homan avenue	Kedzie avenue	1,288	6
Carroll avenue	Carpenter	Curtis	253	4

*Expense of property owners.

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Carroll avenue	May	Ann	279	6
Chicago terrace	Fortieth	Harding	316	4
Christiana	Grand avenue	Northward	470	6
*Clifton	Fullerton avenue	Northward	640	6
Clifton park avenue	Twenty-fourth	Twenty-sixth	1,567	6
Clifton park avenue	Twenty-second	Southward	225	6
Central avenue	Twenty-seventh	Southward	327	8
Commercial avenue	Clybourn place	Southward	60	6
Congress	Francisco	Westward	378	6
Congress	Sacramento avenue	Eastward	180	6
Congress park (e. side)	North crossing	Harrison	32	6
Congress Park (w. side)	North crossing	Harrison	30	6
Courtland	California avenue	Washtenaw avenue	575	8
Courtland	California avenue	Humboldt boulevard	1,180	8
Damen	May	Sholto	500	4
Davis	Hirsch	Potomac avenue	650	6
Davis	Potomac avenue	Southward	86	6
*Devlin	Lake avenue	Northward	350	6
Dickens avenue	Humboldt	Boulevard	375	6
Diller	Kinzie	Southward	190	6
Diller	Kinzie	Austin avenue	318	6
Diversey avenue	Forest avenue	Elston avenue	670	8
Diversey avenue	Forest avenue	Maplewood avenue	332	8
Division	East crossing	Tinkham avenue	14	12
Division	West crossing	Grand avenue	60	12
Division	Western avenue	Diana avenue	331	8
Division	Seymour	Eastward	166	8
Douglas park place	Fairfield avenue	Eastward	75	6
Drake	Huron	Northward	377	6
Ellen	Lincoln	Evergreen avenue	449	4
Elston avenue	North crossing	Diversey avenne	37	8
Elston avenue	Diversey avenue	Northward	1,787	8
Erie	West crossing	Forty-sixth	15	6
Erie	Forty-eighth	Forty-sixth	1,222	6
Evergreen avenue	East crossing	California avenue	50	6
Evergreen avenue	Maplewood avenue	Hoffman avenue	335	6
Ems	Leavitt	Westward	583	6
Fairview avenue	Fullerton avenue	Boulevard	1,442	6
Fayette place	North crossing	Vernon Park place	40	6
Fillmore	Troy	Kedzie avenue	287	6
*Fillmore	Kedzie avenue	Homan avenue	1,368	6
Flournoy	California avenue	Eastward	48	6
Flournoy	West crossing	Sacramento avenue	25	6
Flournoy	Francisco	Eastward	310	6
Flournoy	Leavitt	Oakley avenue	640	6
Flournoy	Sacramento avenue	Eastward	400	6
Forest avenue	Diversey avenue	Northward	600	6
Forest avenue	Fullerton avenue	Diversey avenue	2,700	6

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* Expense of property owners.

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Forest avenue	South crossing	Elston avenue	20	6
Fortieth, west	Metropolitan place	Chicago terrace	240	12
Fortieth	Glenview avenue	Chicago avenue	950	12
Fortieth	Lake	Washington	916	8
Forty-first	Park avenue	Washington	954	6
Forty-first	Washington	Madison	435	6
Forty-second	Carroll avenue	Northward	60	8
Forty-second	Carroll avenue	Lake	375	8
Forty-second	Park avenue	Southward	289	8
Forty-fifth	Lake avenue	Southward	75	8
Forty-fifth	Carroll avenue	Lake	220	8
Forty-fifth	Lake	Park avenue	500	8
Forty-sixth	Ohio	Indiana	337	4
Forty-sixth	Hubbard	Kinzie	282	4
Forty-sixth	Huron	Ontario	650	4
Forty-seventh	Fulton	Lake	487	6
Forty-eighth	Lake	Fulton	491	8
Forty eighth	Lake	Superior	2,748	8
Francis	California avenue	Point	450	6
Francisco	South crossing	Monroe	48	6
Francisco	Carroll avenue	Northward	180	8
Francisco	Madison	Warren avenue	240	6
Francisco	Colorado avenue	Madison	150	6
Francisco	Fulton	Southward	70	8
Francisco	North crossing	Walnut	36	6
Francisco	Fulton	Walnut	267	8
Francisco	Twelfth	Northward	50	6
Frankfort	Leavitt	Hoyne avenue	656	6
Franklin avenue	Maplewood avenue	Hoffman avenue	300	6
Frederick avenue	Ridgeway avenue	Lawndale avenue	333	6
Fullerton avenue	Els'on avenue	Robey	60	8
Fullerton avenue	Linden avenue	Eastward	152	8
Fullerton avenue	Robey	Hoyne avenue	710	8
*Fullerton avenue	California avenue	Milwaukee aveuue	775	8
Fulton	Homan avenue	Eastward	350	8
Fulton	Forty eighth	Forty seventh	666	6
Girard	Milwaukee avenue	Elk Grove avenue	240	6
Glenview avenue	Harding avenue	Fortieth	315	6
Glenview avenue	Ridgeway avenue	Hamlin avenue	330	6
Grand avenue	East crossing	Tinkham avenue	20	12
Grand avenue	Hamlin avenue	Eastward	180	8
Grand avenue	Augusta	Hamlin avenue	3,920	16
Grand avenue	Hamlin avenue	Westward	250	12
Grand avenue	Rockwell	Westward	100	6
Grand avenue	Tinkham avenue	Lawndale avenue	600	8
Grand avenue	Christiana	Westward	144	8
Greenwood	Linden avenue	California avenue	297	8
Greenwood	Myrtle avenue	Hoffman avenue	331	8

*Expense of property owners.

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Greenwood	West crossing	California avenue	32	8
Grenshaw	East crossing	Campbell avenue	39	6
Grenshaw	Homan avenue	Westward	265	6
Gross avenue	Courtland avenue	Southward	388	6
Hamburg	Leavitt	Westward	325	6
Harding avenue	Indiana	Ohio	670	6
Harding avenue	Chicago Terrace	Huron	234	6
Harding avenue	Indiana	Southward	310	6
Harding avenue	Park avenue	Northward	275	6
Harding avenue	Ohio	Metropolitan place	227	6
Harding avenue	Glenview avenue	Northward	666	6
Harrison	Kedzie avenue	Halsted	16,061	24
Harvard	East crossing	Campbell avenue	29	6
Harvard	East crossing	California avenue	48	8
Hoffman avenue	Fullerton avenue	Diversey avenue	2,664	6
Hoffman avenue	Franklin avenue	Elston avenue	580	6
Homan avenue	South crossing	Twenty-second	50	8
Homan avenue	Fillmore	Grenshaw	336	8
Homan avenue	Fulton	Carroll avenue	398	8
Homan avenue	Grand avenue	Northward	75	8
Homan avenue	North crossing	Twenty-seventh	36	8
Homan avenue	Grand avenue	Northward	830	8
Humboldt	Palmer avenue	Shakespeare	384	6
Humboldt	Dickens	Shakespeare	385	6
*Humboldt avenue	California avenue	Rockwell	1,346	6
Humboldt	Armitage avenue	Northward	730	6
Hamlin avenue	Augusta	Southward	1,007	8
Holstein park	Ems	Southward	261	6
Holt	Cornell	Southward	84	8
Holt	Cornelia avenue	Augusta	200	4
Holt	Cornell	Cornelia	242	8
Holt	Chicago avenue	Fry	280	4
Hoyne avenue	Webster avenue	Northward	372	6
Hoyne avenue	East crossing	Twentieth	72	8
Hoyne avenue	Ambrose	Moore	332	6
Hoyne avenue	Hammond	Southward	77	6
Hoyne avenue	Crossing	Nineteenth	76	8
Hoyne avenue	South crossing	Eighteenth	48	8
Hoyne avenue	Lubeck	Frankfort	280	6
Hubbard	Forty eighth	Forty-sixth	1,324	6
Huron	Harding avenue	Westward	344	6
Huron	Crossing	Drake avenue	41	6
Huron	West Crossing	Forty-sixth	15	6
Huron	Rockwell	Westward	100	4
Huron	Forty-eighth	Forty sixth	1,222	6
Huron	St. Louis	Drake avenue	307	6
Huron	Western avenue	Seymour	642	6
Indiana	Forty-eighth	Forty-sixth	1,310	6

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*Expense of property owners.

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Indiana	West crossing	Forty-sixth	12	6
Ingraham	Elston avenue	Westward	400	4
Irving avenue	Kinzie	Southward	217	4
Jackson	East crossing	Central Park avenue	25	8
Johnson	Boulevard	Eastward	466	6
Kedzie avenue	Crossing	Twenty-second	86	12
Kinzie (s. side)	Forty-eighth	Eastward	341	6
Kinzie (n. side)	Forty-eighth	Forty-sixth	1,316	6
Kosciusko	Hoyne avenue	Westward	175	6
Kosciusko	Hoyne avenue	Sobieski	336	6
Laflin	Twenty first	Northward	132	6
Lake	Fortieth	Forty-eighth	5,475	12
Laughton	Boulevard	Eastward	105	6
Laurel avenue	Fullerton avenue	Diversey avenue	2,633	6
Lawndale avenue	Glenview avenue	Augusta	690	6
Lawndale avenue	Twenty-seventh	Northward	395	8
Lawndale avenue	Frederick	Northward	590	6
Lawndale avenue	Indiana	Southward	433	6
Lawndale avenue	Kinzie	Northward	206	6
Lawndale avenue	Grand avenue	Northward	200	6
Leavitt	Coulter	Laughton	325	8
Leavitt	Moore	Ambrose	335	8
Leavitt	Hinman	Southward	80	8
Leavitt	Twelfth	Thirteenth place	246	8
Leddy	McGovern	Northward	160	6
Lexington	California avenue	Eastward	48	6
Lexington	Albany avenue	Kedzie avenue	625	6
Lexington	East crossing	Sacramento avenue	25	6
Lincoln	Twentieth	Southward	144	6
Lincoln	Crossing	Nineteenth	80	6
Lincoln	Crossing	Eighteenth	80	6
Linden avenue	Fullerton avenue	Boulevard	1,490	6
Linden avenue	Boulevard	Diversey avenue	1,175	6
Maplewood avenue	Fullerton avenue	Diversey avenue	2,700	8
Maplewood avenue	Diversey avenue	Northward	675	8
*Maplewood avenue	Diversey avenue	Northward	600	6
Maplewood avenue	Elston avenue	Southward	200	8
Maplewood avenue	Hirsch	Southward	604	6
Maplewood avenue	North crossing	Division	54	6
Marvin	East crossing	Boulevard	20	6
McGovern	Kedzie avenue	Thomas	1,100	6
McHenry court	Point	Northward	226	4
Metropolitan place	East crossing	Fortieth	23	4
Metropolitan place	Harding	Fortieth	290	4
*Milwaukee avenue	Fullerton avenue	Thomas	817	8
Milwaukee avenue	McGovern	Fullerton avenue	675	8
Millard avenue	Twenty-eighth	Southward	525	6
Millard avenue	Twenty-seventh	Southward	185	6

*Expense of property owners.

WEST DIVISION—Continued.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Moffat	Rockwell	Eastward	349	6
Monroe	Kedzie avenue	Spaulding avenue	600	6
Monroe	Spaulding avenue	Westward	520	6
Monroe	Kedzie avenue	Eastward	362	6
Monroe	Rockwell	Westward	525	6
Montana	Western avenue	Eastward	361	4
Myrtle avenue	Fullerton avenue	Diversey avenue	2,607	8
Newton	Thomas	Northward	157	4
North avenue	Simons avenue	Westward	1,400	12
Oakley avenue	Bryson	Hirsch	666	6
Oakley avenue	North crossing	Nineteenth	30	6
Oakley avenue	North crossing	Eighteenth	74	6
Oakley avenue	South crossing	Erie	43	6
Oakley avenue	Thompson	Northward	300	6
Ohio	West crossing	Forty-sixth	12	6
Ohio	Albany avenue	Troy avenue	335	12
Ohio	Harding	Crawford avenue	300	12
Ohio	Forty-eighth	Forty-sixth	1,310	6
Ohio	West crossing	Fortieth	18	12
Ontario	West crossing	Forty-sixth	15	6
Ontario	Forty-eighth	Forty-sixth	1,222	6
Owasca	Washtenaw avenue	California avenue	316	6
Paulina	Nineteenth	Twenty-first	638	6
*Paulina	Blue Island avenue	Southward	206	6
Paulina	Twenty-first	Twenty-second	600	6
Park avenue	Fortieth	Forty-fifth	3,364	6
Park avenue	Fortieth	Eastward	920	6
Polk	Sacramento avenue	Westward	190	6
Polk	East crossing	California avenue	48	6
Polk	Rockwell	Eastward	175	6
Polk	Albany avenue	Eastward	185	6
Polk	California avenue	Washtenaw avenue	627	6
Potomac avenue	Dania avenue	Westward	98	8
Potomac avenue	Leavitt	Shober	300	8
Potomac avenue	Oakley	Western avenue	700	8
Rebecca	Rockwell	Eastward	770	6
Rhine	Leavitt	Oakley avenue	666	6
*Richmond	Milwaukee avenue	Northward	450	6
Ridgeway avenue	Williams avenue	North avenue	1,915	6
Ridgeway avenue	Indiana	Kinzie	615	6
Robey	Webster avenue	Fullerton avenue	1,395	8
Rockwell	Division	Northward	352	12
Rockwell	North avenue	Thompson	532	12
Rockwell	Huron	Grand avenue	570	6
Rockwell	Sixteenth	Rebecca	332	6
Rockwell	North crossing	Twenty-second	36	6
Rockwell	South crossing	Twenty-second	28	6
*Rockwell	Werder	Northward	247	12

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*Expense of property owners.

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Sacramento avenue	Lake	Walnut	404	8
Sacramento avenue	Madison	Warren avenue.	232	8
Sacramento avenue	Fulton	Kinzie	535	8
Sacramento avenue	Walnut	Southward	56	8
Sacramento avenue	North crossing	Fulton	50	8
Sacramento avenue	Washington boulevard	Lake	360	8
Sacramento avenue	Fillmore	Twelfth	662	8
Sacramento avenue	Flournoy	Lexington	330	8
Sacramento avenue	North crossing	Twenty-second	31	6
Sawyer avenue	Twenty fourth	Twenty-third	666	6
Sawyer avenue	Twenty-fourth	Southward	316	6
Shakespeare	Humboldt	Mozart	384	6
Shakespeare	Humboldt	Boulevard	375	6
Sheffield avenue	Fullerton avenue	Southward	198	6
Shober	Thompson	Northward	316	6
Spaulding avenue	North crossing	Twenty-second	50	8
Spaulding avenue	Twenty-second	Twenty-third	628	6
Station	Greenwood	Northward	443	6
St. Louis avenue.	Twenty-third	Southward	315	6
St. Louis avenue.	Central Park boulevard	Huron	920	[illegible]
St. Mary's court.	Stave	Southward	240	4
Taylor	Sacramento avenue	Eastward	415	6
Taylor	Albany avenue	Kedzie avenue	625	6
Thomas, 175 ft. west of	Milwaukee avenue	Northward	320	6
*Thomas.	Milwaukee avenue	Northward	200	6
Thirteenth place.	Fairfield avenue	Eastward	76	6
Thompson	East crossing	Dania avenue	55	6
Tinkham avenue	South crossing	Grand avenue	40	6
Tinkham avenue	North crossing	Grand avenue	24	12
Tinkham avenue	Division	Northward	148	6
*Troy	Twenty-second	Southward	1,560	6
Troy	Twenty-sixth	Twenty-fifth	616	6
*Troy	Ohio	Chicago avenue	1,292	6
Troy	South crossing	Twenty-second	36	6
Troy	North crossing	Twenty-second	36	6
*Trumbull avenue.	Twenty-sixth	Twenty-seventh	700	6
*Trumbull avenue.	Twenty-second	Northward	1,260	6
Trumbull avenue	Twenty-second	Southward	308	6
Trumbull avenue	North crossing	Twenty-second	36	6
Trumbull avenue	South crossing	Twenty-second	26	6
Turner avenue	North crossing	Twenty second	36	6
Turner avenue	South crossing	Twenty-second	28	6
Twelfth	Sacramento avenue	Albany avenue	662	12
Twelfth	California avenue	Sacramento avenue	1,072	12
Twelfth	Troy	Kedzie avenue	370	12
Twelfth	Sacramento avenue.	Eastward	206	12
Twentieth	Rockwell	Washtenaw avenue	641	6
Twentieth	Lincoln	Robey	720	6

*Expense of property owners.

WEST DIVISION—CONTINUED.

REET.	FROM	TO	Length of Pipe in feet.	Size in inches.
y-first....	Crossing	Union................	76	6
y-second..	Crossing............	Western avenue......	24	6
y second..	California avenue.....	St. Louis avenue.....	4,595	6
y second..	Rockwell....	Western avenue......	1,304	8
y-second..	California avenue	Western avenue......	2,636	6
y second..	Trumbull avenue.....	Spaulding avenue....	1,010	6
y-second..	Sawyer avenue.......	California avenue.....	2,350	6
y-second..	Sawyer avenue.....	Spaulding avenue....	335	6
y-fourth ..	Crossing...	Millard avenue.......	70	6
y-fifth	Crossing..	Millard avenue	70	6
y seventh .	Millard avenue......	Eastward...........	125	6
y seventh .	Central Park avenue..	Westward............	212	6
....	North crossing.......	Twelfth...	41	6
sia avenue	Humboldt boulevard..	Kedzie avenue.......	1,210	8
sia avenue	California avenue	Humboldt boulevard..	1,178	8
sia avenue	Rockwell	California avenue.	1,295	8
aw avenue....	Division	Southward...........	136	8
aw avenue....	Werder....	Potomac avenue......	324	8
aw avenue ...	Twentieth.... ...	Twenty-first........ ...	333	8
aw avenue ...	South crossing.......	Twenty-second.......	48	8
ngton	Fortieth............	Forty-fourth.........	2,635	6
, West	Madison........	Randolph...	928	6
rn avenue.	Greenwood..........	Northward	310	8
er........	Washtenaw	Westward...........	332	6
er.........	Rockwell	Westward...........	510	6
ole	South crossing	Twenty-second.......	28	6
er avenue . ..	Polk................	Northward..........	192	6
....	Ashland avenue......	Marshfield avenue....	270	6
....	Marshfield avenue....	Paulina.	269	6
	Total..............................		203,274	......
	Add branch pipe for hydrants		5,772	6
	Add branch pipe for hydrants...............		524	4
	Total feet laid in West Division..		209,570	......

PIPE TAKEN UP OR ABANDONED IN 1889.

STREET.	FROM	TO	TAKEN UP OR ABANDONED.		SUBSTITUTED.	
			Length in Feet.	Size in Inches.	Length in Feet.	Size in Inches.
Archer avenue	Thirty-seventh	Southward	200	6	200	8
Canal	Fulton	Lake	320	4	320	8
Fremont	Willow	Clay	808	4	808	6
Gardner	Halsted	Vine	1,100	4	1,100	6
Grand avenue	Hamlin avenue	Westward	250	8	250	12
Rockwell	North avenue	Thompson	532	6	532	12
Rush	Oak	Cedar	568	4	568	8
Sacramento avenue	Fulton	Kinzie	190	4	190	8
Third avenue	Jackson	Harrison	1,200	3	1,200	8
Van Buren	Wabash avenue	Michigan avenue	361	4	361	8
West Water	Madison	Randolph	928	3	928	6
TOTAL			6,457	....	6,457	....

RECAPITULATION OF PIPE TAKEN UP OR ABANDONED IN 1889.

3-inch	2,128 feet.
4-inch	3,347 feet.
6-inch	732 feet.
8-inch	250 feet.
TOTAL	6,457 feet.

TABLE SHOWING AMOUNT OF PIPE IN USE IN THE NORTH, SOUTH AND WEST DIVISIONS AT THE CLOSE OF 1889.

Diameter of Pipe.	1888.	1889.			
	Amount in Use in Feet.	Amount Taken up or Abandoned in Feet.	Amount Laid in Feet.	Grand Total in Feet in Use at the close of 1889.	Grand Total in Miles.
36	46,770	....	9,983	56,753	$10\frac{3953}{5280}$
30	39	....	....	39	$0\frac{39}{5280}$
28	160	....	....	160	$0\frac{160}{5280}$
24	99,903	....	16,061	115,964	$21\frac{5084}{5280}$
16	115,417	....	8,493	123,910	$23\frac{2470}{5280}$
12	217,142	....	15,743	232,885	$44\frac{565}{5280}$
10	8,012	....	....	8,012	$1\frac{2732}{5280}$
8	756,316	250	68,678	824,744	$156\frac{1064}{5280}$
6	1,583,398	732	158,216	1,740,882	$329\frac{3762}{5280}$
4	784,628	3,347	7,799	789,080	$139\frac{2360}{5280}$
3	13,179	2,128	....	11,051	$2\frac{491}{5280}$
Total in feet,	3,574,964	6,457	284,973	3,853,480	....
Total in miles	$677\frac{404}{5280}$	$1\frac{1177}{5280}$	$53\frac{5133}{5280}$	$729\frac{4360}{5280}$	$729\frac{4360}{5280}$

LAKE DISTRICT.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Aberdeen	Fifty-seventh	Fifty eighth	660	6
Aberdeen	Sixtieth	South line of T. & H. subdivision	330	6
Aberdeen	Seventy-third	Seventy-fourth	660	6
Alley N. of Garfield B'd.	Wright	Wallace	600	6
Ashland avenue	Fifty-fourth	Fifty-ninth	3,300	8
Bishop	Sixty-seventh	Sixty-ninth	1,320	6
Blanchard avenue	Fifty-first	Fifty-fifth	2,640	6
Butterfield	Garfield boulevard	North line of Coburn's addition	585	6
Centre avenue	Seventy-third	Seventy-fifth	1,200	8
Eightieth	Halsted	Sherman avenue	790	6
Emerald avenue	Seventy-ninth	Eightieth	660	6
Fiftieth	Halsted	Winter	660	6
Fifty-first	Genesee	Morie avenue	660	8
Fifty-fourth	Western avenue	Hart avenue	615	6
Fifty-fifth	Gage place	Blanchard avenue	840	6
Fifty-fifth	Tracy avenue	Stuart avenue	300	6
Fifty-sixth	Wright	Wallace	630	6
Florence avenue	Forty-third	North line of Hall's subdivision	1,531	6
Florence avenue	Fifty-first	Fifty-fifth	2,640	6
Gage place	Fifty-fourth	Fifty-fifth	485	6
Garfield boulev'd	Wentworth avenue	Tracy avenue	990	6
Garfield boul'd	State Atlantic	Wentworth avenue School	1,673	6
Green	Seventy-first	Seventy-third	1,320	6
Halsted	Eighty-first	Eighty-seventh	2,460	14
Hart avenue	Fifty-first	Fifty-fourth	2,155	6
Justine	Sixty-eighth	Sixty-ninth	660	6
Laughlin	Sixty-seventh	Sixty-ninth	1,320	6
Loomis	Fifty-third	Garfield boulevard	1,300	6
May	Sixty-seventh	Sixty-ninth	1,320	6
May	Sixty-ninth	Seventy-first	1,320	6
May	Seventy-third	Seventy-fourth	660	6
Peoria	Seventy-first	Seventy-third	1,320	6
Peoria	Seventy-third	Seventy-fifth	1,159	6
Robey	Forty-seventh	Fifty-first	2,640	8
Sackett avenue	North line of Hall's subdivision	Forty-third	1,531	6
Sackett avenue	Fifty-first	Fifty-fourth	2,155	6
Sangamon	Seventy-first	Southward	400	6
Seventy-first	Morgan	Centre avenue	1,320	8
Seventy-first	Centre avenue	Ada avenue	825	8
Seventy-first ct.	Centre avenue	Ada avenue	825	4
Seventy-second	Centre avenue	Ada avenue	825	6
Seventy-second court	Centre avenue	Ada avenue	825	4
Seventy-third	Centre avenue	Ada avenue	825	6

LAKE DISTRICT—CONTINUED.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Seventy-third ct.	Centre avenue	Ada avenue	825	4
Seventy-fourth	Centre avenue	Ada avenue	825	6
Seventy-fourth court	Centre avenue	Ada avenue	825	4
Sherman	Seventy-ninth	Eightieth	660	6
Sixty-sixth	Wright	Honore	534	6
Sixty-seventh	Laughlin avenue	Ashland avenue	660	12
Sixty-seventh	Loomis	Laughlin	660	12
Sixty-ninth	Loomis	Ashland avenue	1,320	6
Stewart avenue	Forty-fifth	Forty-fourth court	450	6
Vincennes avenue	Halsted	Eighty-seventh	1,540	14
Winter	Seventy-ninth	Eightieth	660	6
Total			59,893	

TABLE SHOWING THE AMOUNT OF PIPE IN USE IN THE LAKE DISTRICT AT THE CLOSE OF 1889.

Diameter of Pipe.	1888.	1889.		
	Amount in Use in Feet.	Amount Laid in Feet.	Grand Total in Feet in Use at the close of 1889.	Grand Total in Miles.
24	26,780	....	26,780	$5\frac{380}{5280}$
18	1,000	....	1,000	$0\frac{1000}{5280}$
16	2,260	....	2,260	$0\frac{2260}{5280}$
14	19,280	4,000	23,280	$4\frac{2160}{5280}$
12	61,500	1,320	62,820	$11\frac{4740}{5280}$
10	2,220	....	2,220	$0\frac{2220}{5280}$
8	155,225	9,945	165,170	$31\frac{1490}{5280}$
6	282,852	41,328	324,180	$61\frac{2100}{5280}$
4	96,640	3,300	99,940	$18\frac{4900}{5280}$
3	5,280	....	5,280	1
Total in Feet,	653,037	59,893	712,930	....
Total in Miles,	$123\frac{3597}{5280}$	$11\frac{1813}{5280}$	$135\frac{130}{5280}$	$135\frac{130}{5280}$

HYDE PARK DISTRICT.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Alley east of S. Park ave	Sixtieth	Sixty-first	1,132	6
Alley east of Woodl'n ave	Sixty-first	Northward	1,264	6
First alley east Drexel b'd	Forty-first	Forty-second	745	6
Adams avenue	Seventy-third	Seventy-fifth	1,322	6
Adams avenue	Sixty-ninth	Northward	320	6
Anthony avenue & 93d	Commercial avenue	Luella avenue	5,274	8
Avenue "A"	Seventy-first	Northward	1,305½	6
Avenue "B"	Seventy-first	Northward	1,306	6
Avenue "C"	Seventy-first	Northward	653½	6
Berkeley avenue	Forty-fourth	Forty-fifth	660	6
Bond avenue	Seventy first	Seventy-fifth	2,549	6
Calhoun avenue	Hundred and seventh	Hundred and ninth	1,170	6
Cottage Grove avenue	Thirty-ninth	Fifty-first	7,994	16
Champlain ave	Forty-second	Forty-third	660	6
Dobson avenue	Seventy-first	Seventy-third	1,306	6
Drexel avenue	Fifty-first	Fifty-sixth	3,220	6
Edgerton avenue	Sixtieth	Sixty-first	760	6
Ellis avenue	Fifty-fifth	Southward	524	6
Forty-first	Lake avenue	State	7,053	12
Forty-fourth	Cottage Grove avenue	Eastward	298	6
Forty-sixth	Woodlawn avenue	Lake avenue	680	6
Grace avenue	Jackson Park terrace	Northward	266	6
Greenwood ave	Sixty-third	Sixty-fifth	1,477	6
Greenwood ave	Seventy-first	Seventy-third	1,304½	6
Hope avenue	Jackson Park terrace	Northward	261	6
Houston avenue	Eighty-seventh	Eighty-ninth	1,139	6
Hoxie avenue	Hundred and fourth	Hundred and ninth	3,150	6
Indiana avenue	Hundred and ninth	Northward	269	6
Indiana avenue	Hundred and ninth	Southward	243	6
Indiana avenue	Hundred and seventeenth	Hundred and eighteenth	606½	6
Indiana avenue	Sixty-third	Southward	237	4
Iron	Michigan avenue	Indiana avenue	734	6
Jack. Park terrace	Stony Island avenue	Illinois Central R. R.	1,174	6
Jefferson avenue	Sixty-ninth	Northward	320	6
Kimbark avenue	Fifty-third	Fifty fourth	514	6
Kimbark avenue	Fifty-eighth	Fifty-ninth	660	6
Lexington ave	Fifty-fourth	Fifty-sixth	1,744	6
Lexington ave	Sixty-third	Sixty-first	1,323	6
Lincoln	Sixty-third	Sixty-fifth	1,475	6
Madison avenue	Sixty-seventh	Seventy-first	2,629	6
Madison avenue	Seventy-second place	Seventy-fifth	1,663	6
Michigan avenue	Hundred and ninth	Hundred and seventh	1,540	6
Michigan avenue	Hundred and fifteenth	Hund'd and nineteenth	2,641½	8
Monroe avenue	Fifty-eighth	Fifty-ninth	660	6
Myrtle avenue	Woodlawn avenue	Sixty-fifth	920	6
Notre Dame ave	Hundred and second	Hundred and sixth	2,860	8
Oglesby avenue	Sixty-first	Northward	547	6
Hundred and fourth	Torrence avenue	Hoxie avenue	330	8

HYDE PARK DISTRICT—Continued.

STREET.	FROM	TO	Length of Pipe in feet.	Size in inches.
Hundred and sixth	Notre Dame avenue	Hoxie avenue	1,620	8
Hundred and seventh	Torrence avenue	Calhoun avenue	660	6
Hundred and ninth	Indiana avenue	State	1,309	6
Hundred and ninth	Torrence avenue	Calhoun avenue	660	8
Hundred and seventeenth	Michigan avenue	Indiana avenue	738	6
Hundred and eighteenth	Michigan avenue	Indiana avenue	734	6
Hundred and nineteenth.	Michigan avenue	Indiana avenue	735½	6
Rhodes avenue.	Sixty-first	Northward	455	6
Rhodes avenue.	Seventy-first.	Seventy-third	1,311	6
Ridge avenue	Jackson Park terrace	Northward	355	6
Sawyer avenue	Michigan avenue	Indiana avenue	736	6
Sheridan avenue	Sixty-first street	Northward	587	6
Ninety-fifth	So. Chicago avenue	Ewing avenue	3,969	12
So. Chicago ave.	Commercial avenue	Ninety-fifth		
So. Park avenue.	Sixty-seventh	Anthony avenue	798	8
State	Hundred and ninth	North and South	483	4
Seventy-sixth	Stony Island avenue	Drexel avenue	5,342	12
Stony Island ave.	Seventy-fifth	Seventy-sixth		
Superior avenue	Eighty-ninth	Ninety-second	2,001	6
Sixty-first.	Cottage Grove avenue.	South Park avenue	2,650	6
Seventy-first	Bond avenue	Yates avenue	1,143	6
Seventy-first	Stony Island avenue	Avenue "C"	1,359	6
Seventy-first	Woodlawn avenue	Dobson avenue	1,020	8
Seventy-third	Adams avenue	Madison avenue	322	6
Torrence avenue.	Hundred and fourth	Hundred and ninth	3,150	8
Vernon avenue	Sixty-first	Northward	454	6
Vincennes ave	Sixty-first	Northward	454	6
Wabash avenue	Sixty-seventh	Sixty-ninth	1,326	6
Wabash avenue	Hundred and ninth	North and south	486	6
Washington ave.	Fifty-third	Lake	1,415	6
Young	Hundred and ninth	North and south	512	6
Total			107,622	

TABLE SHOWING THE AMOUNT OF PIPE IN USE IN THE HYDE PARK DISTRICT AT THE CLOSE OF 1889.

Diameter of Pipe.	1888.	1889.		
	Amount in Use in Feet.	Amount Laid in Feet.	Grand Total in Feet in Use at the close of 1889.	Grand Total in Miles.
24	8,223	....	8,223	$1\frac{2943}{5280}$
20	2,651	....	2,651	$0\frac{2651}{5280}$
16	64,721	7,994	72,715	$13\frac{4075}{5280}$
12	39,411	16,364	55,775	$10\frac{2975}{5280}$
10	16,628	....	16,628	$3\frac{788}{5280}$
8	80,836	18,353.5	99,189.5	$18\frac{8299}{10560}$
6	275,570	64,190.5	339,760.5	$64\frac{3681}{10560}$
4	71,922	720	72,642	$13\frac{4002}{5280}$
Total in Feet,	559,962	107,622	667,584	....
Total in Miles,	$106\frac{282}{5280}$	$20\frac{2022}{5280}$	$126\frac{2304}{5280}$	$126\frac{2304}{5280}$

LAKE VIEW.

STREET.	FROM	TO	Length of Pipe in feet	Size in inches.
Addison avenue.	Robey	Hoyne avenue	12 660	6 8
Aldine	Evanston avenue	Eastward	360	6
Ashland avenue	Leland avenue	Lawrence avenue	675	6
Blucher	Noble avenue	Nelson avenue	325	6
Blucher	Nelson avenue	Wellington avenue	339	6
Byron	Sheffield avenue	Robey	650	6
Byron	Woodside	Commercial	331	6
Byron	Ashland avenue	Woodside	318	6
*Clark	Grand avenue	Church road	1,300	6
Commercial	Tuthill	Webster avenue	615	4
Commercial	Cosgrove	Bertreau avenue	732	6
Deming court	Clark	Eastward	300	6
Dunning	West crossing	Ashland avenue	48	6
Eastwood avenue	West crossing	Sheffield avenue	24	6
George	West crossing	Ashland avenue	48	6
*Goodwin	Fifty-ninth	Berwyn avenue	1,350	6
Goodwin	Aberdeen	Fifty ninth	460	6
Janot	Crossing	Robey	60	6
Lawrence avenue	Ashland avenue	Paulina	432	8
Lawrence avenue	Clark	Ashland avenue	12 530	6 8
Lawrence avenue	East crossing	Clark	24	8
Lawrence avenue	Commercial	Ravenswood avenue	450	8
Lawrence avenue	Ravenswood park	Eastward	195	8
Lawrence avenue	Paulina	Commercial	432	8
Montana	Crossing	Ashland avenue	48	6
Nelson	Blucher	Eastward	269	4
Nelson	Crossing	Ashland avenue	60	6
Oakdale	Crossing	Ashland avenue	48	6
Paulina	Tuthill	Webster avenue	580	6
Perry	Crossing	Sulzer	48	6
Perry	Sunnyside	Sulzer	660	6
Perry	Sunnyside	Wilson avenue	694	6
Ravenswood park	Sunnyside	Sulzer	725	6
Robey	Gedding	Lawrence avenue	375	6
Robey	Sulzer	Sunnyside	725	6
School	Leavitt	Hoyne avenue	664	4
Sheffield avenue.	Crossing	Windette	24	6
Wellington avenue	Crossing	Ashland avenue	72	6
Wilson avenue	Sheffield avenue	Hazel avenue	670	6
Wilson avenue	Hazel avenue	Halsted	585	6
Wilson avenue	Crossing	Robey	55	6
Windsor avenue.	East crossing	Sheffield avenue	24	6
Wolfram	Crossing	Ashland avenue	48	6
Wollcot	Sunnyside	Sulzer	725	6
Wollcot	Webster avenue	Washington avenue	500	6
Wollcot	Crossing	Lawrence avenue	36	6
Wood	Crossing	Belmont avenue	48	6
Wrightwood avenue	Crossing	Ashland avenue	72	8
York place	Clark	Evanston avenue	590	4
	Total		19,027	......

*Expense Property.

TABLE SHOWING THE AMOUNT OF PIPE IN USE IN THE LAKE VIEW DISTRICT AT THE CLOSE OF 1889.

Diameter of Pipe.	1888.	1889.		
	Amount in Use in Feet.	Amount Laid in Feet.	Grand Total in Feet in Use at the close of 1889.	Grand Total in Miles.
24	2,000	....	2,000	$0\frac{2000}{5280}$
20	5,280	....	5,280	1
16	2,640	....	2,640	$0\frac{2640}{5280}$
14	1,954	....	1,954	$0\frac{1954}{5280}$
12	27,783	....	27,033	$5\frac{633}{5280}$
8	48,527	2,795	51,322	$9\frac{4302}{5280}$
6	183,484	14,094	197,578	$37\frac{2218}{5280}$
4	157,054	2,138	159,192	$30\frac{792}{5280}$
3	633	....	633	$0\frac{633}{5280}$
Total in Feet,	428,605	19,027	447,632	....
Total in Miles,	$81\frac{925}{5280}$	$3\frac{3187}{5280}$	$84\frac{4112}{5280}$	$84\frac{4112}{5280}$

RECAPITULATION OF PIPE LAID DURING 1889, INCLUDING HYDRANT BRANCHES.

DIVISION.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Length of Pipe in Feet.	Diameter of Pipe in Inches.	Total Length of Pipe in Feet.
North........	965	4	7,072	6	1,611	8	....	12	....	14	....	16	....	24	......	36	9,648
South	702	4	31,110	6	23,500	8	370	12	......	14	....	16	....	24	9,983	36	65,755
West	6,042	4	120,034	6	43,567	8	15,373	12	......	14	8,493	16	16,061	24	....	36	209,570
Lake District......	3,300	4	41,328	6	9,945	8	1,320	12	4,000	14	... ...	16	....	24	......	36	59,893
Hyde Park District.	720	4	64,190½	6	18,353½	8	16,364	12	....	14	7,994	16	....	24	....	36	107,622
Lake View District.	2,138	4	14,094	6	2,795	8	... ...	12	......	14	....	16	....	24	......	36	19,027
Total in Feet......	13,957	4	277,828½	6	99,771½	8	33,427	12	4,000	14	16,487	16	16,061	24	9,983	36	471,515
Total in Miles.....	$2\frac{3397}{5280}$	4	$52\frac{2537}{10560}$	6	$18\frac{9463}{10560}$	8	$6\frac{1747}{5280}$	12	$0\frac{4000}{5280}$	14	$3\frac{647}{5280}$	16	$3\frac{221}{5280}$	24	$1\frac{4703}{5280}$	36	$89\frac{1595}{5280}$

TABLE SHOWING THE AMOUNT OF PIPE IN USE IN THE CITY OF CHICAGO AT THE CLOSE OF 1889.

Diameter of Pipe.	1888.	1889.			
	Amount in Use in Feet.	Amount Taken up or Abandoned in Feet.	Amount Laid in Feet.	Grand Total in Feet in Use at the close of 1889.	Grand Total in Miles.
36	46,770	....	9,983	56,753	$10\frac{3953}{5280}$
30	39	....	....	39	$0\frac{39}{5280}$
28	160	....	....	160	$0\frac{160}{5280}$
24	136,906	....	16,061	152,967	$28\frac{5127}{5280}$
20	7,931	....	....	7,931	$1\frac{2651}{5280}$
18	1,000	....	....	1,000	$0\frac{1000}{5280}$
16	185,038	....	16,487	201,525	$38\frac{885}{5280}$
14	21,234	....	4,000	25,234	$4\frac{4114}{5280}$
12	345,086	....	33,427	378,513	$71\frac{3633}{5280}$
10	26,860	....	....	26,860	$5\frac{460}{5280}$
8	1,040,904	250	99,771	1,140,425	$215\frac{5225}{5280}$
6	2,325,304	732	277,828	2,602,400	$492\frac{4640}{5280}$
4	1,060,244	3,347	13,957	1,070,854	$202\frac{4294}{5280}$
3	19,092	2,128	....	16,964	$3\frac{1124}{5280}$
Total in feet,	5,216,568	6,457	471,514	5,681,625	....
Total in miles	$987\frac{5208}{5280}$	$1\frac{1177}{5280}$	$89\frac{1594}{5280}$	$1,076\frac{345}{5280}$	$1,076\frac{345}{5280}$

The following table shows the number of stop valves put in during the year 1889 in the North, South and West Divisions:

DIVISION.	SIZE OF VALVES.							TOTAL.
	4-in.	6-in.	8-in.	12-in.	16-in.	24-in.	36-in.	
North..............	3	8	3	0	0	0	0	14
South..............	2	42	28	6	0	0	0	78
West...............	17	190	78	23	3	6	0	317
Total..........	22	240	109	29	3	6	0	409

During the year 1889, one 4-inch valve in the North Division was replaced by a 6-inch valve, and in the West Division one 8-inch valve was replaced by a 12-inch valve.

Table showing number and size of valves in use in the North, South and West Divisions at the end of 1889:

DIVISION.	SIZE OF VALVES.							TOTAL
	4-in.	6-in.	8-in.	12-in.	16-in.	24-in.	36-in.	
North	166	386	271	32	13	12	3	883
South	150	576	608	73	16	15	4	1,437
West	552	1,475	886	178	60	30	5	3,186
Total	868	2,437	1,760	283	89	57	12	5,506

Valves in Lake View District at the end of 1889—

3-inch	1
4-inch	234
6-inch	308
8-inch	52
12-inch	22
14-inch	3
16-inch	1
20-inch	3
24-inch	2
Total	626

Valves in Hyde Park District—

4-inch	75
6-inch	278
8-inch	94
10-inch	18
12-inch	28
16-inch	35
24-inch	4
Total	532

HYDRANTS PLACED DURING 1889.

The following tables show the hydrants placed and removed during 1889 and the total number now in use in the North, South, and West Divisions:

PLACED.

DIVISION.	2½-inch Single.	2½-inch Double.	4-inch Double.	TOTAL.
North..............	10	20	0	30
South	13	114	1	128
West..............	40	443	1	484
Total..........	63	577	2	642

During the year there were taken out in the West Division eleven 2½-inch single hydrants, in the South Division five, and in the North Division ten, all of which were replaced by 2½-inch double nozzle hydrants.

TOTAL NUMBER OF HYDRANTS IN USE IN THE NORTH, SOUTH AND WEST DIVISIONS AT THE CLOSE OF 1889.

DIVISION.	2½-inch Single.	2½-inch Double.	4-inch Double.	TOTAL.
North..............	411	433	129	973
South..............	742	843	192	1,777
West	1,418	2,586	237	4,241
Total	2,571	3,862	558	6,991

In the Hyde Park District there are five hundred and eighty-five 2½-inch double nozzle combined with one 4-inch nozzle fire hydrants, six hundred and eleven 2½-inch double nozzle, and seventy-five single nozzle fire hydrants.

In the Lake View District there are five hundred and ninety-four 2½-inch double nozzle, and three 2½-inch single nozzle fire hydrants.

In the Lake District there are fifteen hundred and ninety-seven 2½-inch double nozzle fire hydrants combined with one 4-inch nozzle.

Table showing total number of fire hydrants in the city of Chicago at the close of 1889, excepting those in Pullman, which are private property:

DIVISION.	2½-inch Single.	2½-inch Double.	4-inch Double.	2½-inch Double, with one 4-inch Single.	TOTAL.
North	411	433	129	0	973
South	742	843	192	0	1,777
West	1,418	2,586	237	0	4,241
Hyde Park	75	611	0	585	1,271
Lake View	3	594	0	0	597
Lake	0	0	0	1,597	1,597
Total	2,649	5,067	558	2,182	10,456

One fire cistern was built during the year, at the intersection of Union and Washington Streets.

HYDRAULIC ELEVATORS AND WATER METERS.

ELEVATORS.

Number in use December 31, 1888	326
Number added during 1889	3
Number added by annexation	3
Total number in use December 31, 1889	332

Revenue collected during 1889 for Water measured by Meters, and used by Hydraulic Elevators was $535,989.43, showing an increase of $18,472.38 over the amount collected from the same source during the year 1888.

Amount collected from old City District	$535,989	43
Amount collected for six months, commencing July 1, 1889, from Hyde Park District	26,519	35
Amount collected for six months, commencing July 1, 1889, from Lake View District	3,436	79
Amount collected for six months, commencing July 1, 1889, from Lake District	26,265	34
Total amount collected	$592,210	91

WATER METERS.

SIZE OF METERS.	⅝-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.	6-inch.	8-inch.	Total.
Number in use December 31, 1888.	508	243	993	549	475	337	15	2		3,122
Number added during 1889	35	31	82	46	54	35	9			292
Number acquired by annexation—										
Lake View District....		9	26	13	17	5	1			71
Hyde Park District....	1	10	26	15	11	13		1	3	80
Town of Lake District.		3	5	10	37	74	11			140
Whole number..........	544	296	1,132	633	594	464	36	3	3	3,705
Number removed during 1889.....	38	12	47	13	9	7	1			127
Number in use December 31, 1889..	506	284	1,085	620	585	457	35	3	3	3,578
Meters owned by City....	160	46	412	116	71	110				905
Meters owned by private parties...	346	238	673	504	514	347	35	3	3	2,673
Total number in use.....	506	284	1,085	620	585	457	35	3	3	3,578
Meters on hand December 31, 1888.	46	3	9	7	13	12	3			93
Meters purchased from manufacturers in 1889..		26	43	28	45	36	8			206
Meters purchased from private parties.........	16	9	15	6	4					50
City meters removed, repaired and placed in stock...........			32	7						39
Total	62	38	99	48	62	48	11			388
Meters set during 1889...	35	31	82	46	54	35	9			292
On hand December 31, 1889....	27	7	17	2	8	13	2			76

RIVER AND DREDGING.

During the year 1889 the water in the lake and river has been lower than at any time for ten years past at least. The average for the year at the crib has been 0.774 feet above datum.

Four times during the year the water at the lake has been below datum having reached —0.79 in February, —0.29 in May, —0.59 in November, and —0.69 in December. The average of the water in the river taken at the Chicago avenue pipe yard was 1.251 feet above datum. This difference will be accounted for by the action of the Fullerton avenue pumps.

A great many vessels have been aground during the year and many blockades caused by the excessively low water, and present indications do not give hopes of very extensive relief during 1890.

The total precipitation for the year has been 38.95 inches.

Dredging has been done to the extent of 250,668 cubic yards at a cost of $65,801.35, or a little over 26 cents per cubic yard.

As the top of the Washington street tunnel has been lowered to about seventeen feet below datum, the entire South Branch should have a channel dredged to a corresponding depth, which will necessitate a much larger appropriation than ordinary, or else some means must be adopted to do the work by special assessment.

The following tables show in detail the elevation of water in Lake Michigan and in the river, also the temperature of the water at the crib.

Tables are also given showing the precipitation for the year, the average temperature for the year, and a statement of excessive rain-falls from October, 1871, to December, 1889, inclusive.

The latter named table will be found of especial interest in the consideration of sewerage and drainage.

ELEVATIONS OF LAKE MICHIGAN, 1889.

FROM OBSERVATIONS TAKEN AT CRIB.

MONTH.	Mean.	Highest.	Lowest.	Number of days above mean.
January	0.70	1.41	0.01	14
February	0.59	2.51	—0.79	15
March	0.65	1 21	0.21	16
April	0.61	1.01	0.21	12
May	0.74	2.01	—0.29	14
June	1.17	1.81	0.71	15
July	1.37	2.01	0.91	17
August	1.27	1.91	0.71	12
September	0 93	1.31	0.21	16
October	0.75	1.51	0.11	13
November	0.36	1.41	—0.59	15
December	0.15	1.21	—0.69	22
Average mean	0.774	....	....	....

ELEVATIONS OF CHICAGO RIVER.

FROM OBSERVATIONS TAKEN AT PIPE YARD (CHICAGO AVENUE).

MONTH.	Mean.	Highest.	Lowest.	Number of days* above mean.
January	1.12	1.60	0.51	12
February	1.12	1.90	0.30	11
March	1.12	1.80	0.50	12
April	1.09	1.60	0.60	12
May	1.25	2.00	0.80	14
June	1.66	2.00	1.30	12
July	1.85	2.20	1.50	13
August	1.65	2.40	1.30	11
September	1 45	1.90	0.70	16
October	1.22	2.00	0.60	12
November	0.85	1.80	0.00	12
December	0 63	1.40	0.00	13
Average mean	1.251	....	....	....

* Not including Sundays or Holidays.

TEMPERATURE OF WATER AT LAKE CRIB, TAKEN AT 2 P. M. EACH DAY OF THE YEAR 1889.

DATE.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November	December
1	32	32	32	38	47	48	63	69	66	58	47	39
2	32	32	32	39	47	48	65	65	65	58	46	38
3	32	32	32	39	47	49	66	65	62	57	46	36
4	32	32	32	39	48	49	65	67	58	56	46	36
5	32	31	33	39	49	49	64	67	54	56	45	36
6	32	32	34	39	50	52	63	66	54	54	44	36
7	32	32	33	39	51	51	63	66	57	52	44	36
8	32	32	33	40	52	50	62	65	59	51	43	36
9	32	32	33	40	52	52	63	65	59	51	43	36
10	32	32	33	41	53	52	64	65	54	51	43	38
11	32	32	34	42	54	52	65	64	54	52	43	38
12	32	32	34	42	52	53	61	64	54	52	44	38
13	32	32	34	42	52	53	63	63	54	50	44	38
14	32	32	35	42	51	54	62	62	55	49	43	38
15	32	32	35	42	51	54	65	62	55	49	43	38
16	32	32	35	42	52	55	67	62	61	49	43	38
17	32	32	36	43	53	55	67	62	58	49	43	38
18	32	32	35	44	56	58	66	62	55	49	43	38
19	32	32	36	46	53	58	66	63	55	50	43	38
20	32	32	36	46	53	57	66	63	56	50	43	38
21	31	32	39	46	53	58	66	63	56	49	43	38
22	32	32	39	47	53	58	66	63	55	49	43	37
23	32	32	38	47	53	58	67	63	55	49	42	37
24	32	32	38	48	53	58	69	63	55	48	42	38
25	32	32	38	48	54	59	69	63	55	48	42	39
26	32	32	38	48	55	60	70	63	56	48	42	39
27	32	32	39	48	55	60	70	63	56	48	41	38
28	32	32	39	48	54	62	70	62	56	47	39	38
29	32	......	38	48	53	62	70	64	57	47	39	38
30	32	......	38	47	52	62	70	66	57	47	39	37
31	32	......	38	.....	50	.....	70	67	......	47	......	37
Averages.	32.0	32.0	35.4	43.3	51.9	54.9	65.9	60.2	56.8	50.6	43.0	37.5

For the three following tables we are indebted to the courtesy of Mr. H. C. Frankenfield, U. S. Signal Service Observer at this station.

STATEMENT SHOWING THE MEAN TEMPERATURE AT CHICAGO, ILL., FOR EACH DAY OF THE YEAR 1889.

DATE.	January.	February.	March.	April.	May.	June	July.	August.	September	October.	November	December
1	27.0	23.0	32.5	42.5	40.0	46.5	75.0	70.0	76.0	58.0	52.0	32.0
2	31.5	31.5	35.0	42.0	40.0	51.0	76.0	71.0	76.0	56.0	44.0	42.0
3	34.0	31.5	35.5	40.5	50.0	50.5	70.0	70.0	76.0	64.0	44.0	36.0
4	35.5	36.5	35.0	38.0	58.0	52.0	64.0	66.0	74.0	51.0	36.0	32.0
5	36.5	5.5	37.5	32.0	63.0	55.5	67.0	64.0	62.0	50.0	32.0	38.0
6	32.0	5.0	40.5	37.5	70.0	64.0	73.0	62.0	64.0	42.0	38.0	40.0
7	32.0	13.5	33.5	41.0	71.5	64.0	76.0	71.0	68.0	44.0	42.0	42.0
8	37.0	24.0	27.0	50.0	75.0	48.5	80.0	76.0	68.0	46.0	45.0	50.0
9	30.0	24.0	25.5	47.5	68.0	53.5	82.0	74.0	70.0	56.0	45.0	40.0
10	17.0	28.0	30.0	47.5	68.5	53.5	74.0	67.0	64.0	56.0	46.0	49.0
11	15.0	20.5	36.0	51.5	48.5	60.5	68.0	68.0	71.0	66.0	45.0	42.0
12	29.0	7.0	37.0	41.0	48.5	66.5	74.0	74.0	72.0	58 0	50.0	47.0
13	30.5	15.0	36.0	38.0	51.0	66.0	72.0	71.0	71.0	47.0	41.0	38.0
14	30.5	24.5	45.5	37.0	48.0	69.0	64.0	64.0	76.0	46.0	36.0	38.0
15	34.5	31.5	47.5	40.0	56.0	62.0	62.0	62.0	66.0	47.0	34.0	40.0
16	45.0	36.0	49.0	44.0	65.0	62.0	64.0	63.0	58.0	52.0	35.0	48.0
17	25.5	25.5	41.0	51.5	76.0	57.0	73.0	62.0	54.0	54.0	46.0	46.0
18	19.0	14.0	35.5	56.5	67.5	66.5	76.0	68.0	48.0	49.0	42.0	44.0
19	25.0	5.5	37.0	58.5	59.0	74.0	70.0	75.0	54.0	55.0	44.0	44.0
20	26.0	6.5	35.5	61.0	51.0	73.5	64.0	76.0	56.0	44.0	43.0	36.0
21	8.0	28.5	36.0	47.0	47.0	63.5	64.0	72.0	47.0	44.0	45.0	42.0
22	29.5	3.5	39.5	45.0	46.0	53 5	72.0	68.0	54.0	48.0	38 0	42.0
23	35.0	-8.0	42.0	59.0	53.0	55.0	68.0	70.0	65.0	42.0	36.0	42.0
24	33.0	0.0	41.0	49.0	54.0	61.0	69.0	73.0	68.0	46.0	40.0	55.0
25	35.5	13.5	33.5	41.5	47.5	64.0	70.0	76.0	54.0	46.0	32.0	40.0
26	29.5	29.5	43.5	50.0	54.0	73.5	71.0	76.0	48.0	43.0	36.0	34.0
27	21.0	30.0	37 5	48.0	49.5	65.0	77.0	76.0	48.0	43.0	34.0	37.0
28	19.5	30.5	33.5	46.5	45.5	66.0	71.0	78.0	55.0	44.0	23.0	42.0
29	20.5	.....	29.5	41.5	43.5	69.0	69.0	78.0	58.0	44.0	18.0	44.0
30	30.5	......	33.0	42.5	40.5	70.0	64.0	80.0	60.0	43.0	20.0	22.0
31	24.0	......	37.0	.....	40.5	......	67.0	74.0	......	46.0	......	32.0
Means..	28.3	19.1	36.7	45 6	54.7	61.2	70.5	70.6	62.7	49.4	38.5	40.5

STATEMENT SHOWING THE PRECIPITATION AT CHICAGO, ILL., FOR EACH DAY OF THE YEAR 1889.

DATE.	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November	December
1	......	......	.28	Trace	......	.17	......	.02	......	......	1.02	......
2	......	......	Trace	......	.09	.03	06	.02	Trace	......	.45	Trace
3	......	.01	......	Trace	......	......	.97	......	Trace	......	......	.01
4	......	.02	......	Trace	......	......	......	Trace	.97	......	......	Trace
5	......	.03	......	Trace	......	Trace	......	......	1.14	Trace	......	.20
6	Trace	......	......	Trace	......	......	......	......	......	.17	......	......
7	......	Trace	......	......	......	.31	......	......	......	.02	.03	......
8	.26	.02	.10	Trace	......	.24	......	.12	......	......	.39	.03
9	.57	Trace	Trace	.02	......	.55	......	.04	......	......	.04	......
10	......	.10	......	......	.16	.04	.14	......	.06	......	......	.95
11	......	.02	......	.07	.57	......	......	......	.01*	......	......	Trace
12	......	......	......	.98	Trace	......	Trace	......	......	.82	.01	......
13	Trace	.16	......	.05	1.32	......	.58	.14	......	......	.	......
14	......	......	......	......	.02	.04	1.48	.02	......	......	.04	.13
15	Trace	.14	......	......	Trace	.14	......	......	.05	......	.01	......
16	.36	.43	Trace	......	.08	.68	......	.03	......	......	......	.02
17	......	......	......	......	Trace	Trace	Trace	......	......	Trace	.01	.15
18	Trace	.24	.01*	.10	Trace	.52	.18	......	......	......	.18	......
19	......	......	......	.69	Trace	......	1.65	......	......	......	.03	......
20	.45	......	......	......	......	02	......	......	......	......	.12	.32
21	Trace	......	......	......	.05	.16	......	......	......	......	.09	.08
22	......	.01	......	......	.06	......	......	......	......	......	.02	.01
23	......	......	......	......	.08	......	......	......	......	......	......	......
24	......	Trace	......	.14	......	......	......	......	......	Trace	......	Trace
25	......	......	......	Trace	Trace	......	......	......	.43	.23	......	......
26	Trace	.14	......	......	.18	......	.32	......	.02	.04	.26	......
27	Trace	......	......	.29	.84	.03	1.18	......	......	......	. 78	......
28	Trace	......	......	.12	......	......	2.84	......	......	......	.01	......
29	......	......	.11	......	.77	......	.13	......	Trace	......	Trace	Trace
30	......	......	.01	......	.16	......	.03	......	.07	.37	......	Trace
31	Trace	......	92	......	.41	......	......	......	......	.17	......	......
Totals..	1.64	1.81	1.48	2.35	5.38	2.93	9.56	0.39	2.75	1.82	3.49	1.90

*Fog.

STATEMENT SHOWING THE DATES OF EXCESSIVE PRECIPITATION AT CHICAGO, ILL., FROM OCTOBER, 1871, TO DECEMBER, 1889, INCLUSIVE, WITH THE DURATION AND RATE OF FALL.

DATES.	Fall equalling or exceeding the rate of 1 inch per hour.			Fall of 2.50 inches or more in twenty-four hours.		
	AMOUNT.	DURATION.		AMOUNT.	DURATION.	
		H.	M.		H.	M.
December 22-23, 1871				2.50	23	30
September 28-29, 1872				2.70	18	45
May 1-2, 1873				2.82	24	00
August 15, 1875	1.00	1	00			
September 9-10, 1875				3.50	23	50
January 18, 1876	1.00	1	00			
June 8, 1876	0.84	0	30			
October 19-20, 1877				2.55	24	00
July 25-26, 1878				4.14	13	40
May 25, 1879				2.77	23	00
July 6-7, 1879				3.32	23	30
November 11-12, 1881				3.88	24	00
November 5-6, 1883				3.39	24	00
March 25-26, 1884				3.26	21	55
June 1-2, 1885				3.34	8	03
August 2-3, 1885				5.90	24	00
August 23-24, 1885				2.95	24	00
May 28, 1888	0.75	0	19			
July 3, 1888	0.75	0	23			
July 31, 1888	1.00	1	00			
August 2, 1888	0.67	0	33			
July 3, 1889	0.28	0	10			
July 12, 1889	0.25	0	10			
July 18-19, 1889	1.55	0	35			
July 27, 1889	4.02	3	34	4.02	3	34
September 4, 1889	0.25	0	10			

BRIDGES AND VIADUCTS.

Two new four-track steel swing bridges have been constructed during the year, viz.: at Adams street and at Clark street.

Adams street bridge is 259 feet long on center truss, and fifty-seven feet in width. The general construction is similar to the four (4) track bridges previously built, the only peculiarity being that the bridge is two feet and three inches lower at the east end than at the west end, and is reversible, the turn-table track being set on a grade of one in 115.

Some doubts were expressed when the plan was proposed as to its feasibility, but no bridge in the city works better than this one.

Work on the bridge was begun April 1, 1889, and the bridge was open for traffic October 1.

The contractors were: For the substructure, the Fitz Simons & Connell Co., and for the superstructure, the King Bridge and Iron Works, of Cleveland, Ohio.

The cost of the bridge is as follows:

Substructure	$ 54,720 54
Superstructure	68,500 00
Machinery	4,450 00
Altering Pittsburgh & Ft. Wayne Freight House	8,640 05
Total	$141,115 07

Cost borne as follows:

City	$ 76,991 99
Chicago Passenger Railway Co.	64,123 68
Total	$141,115 07

CLARK STREET BRIDGE.

This structure is a four-track steel steam bridge and in general characteristics the same as Wells street bridge. It is 215 feet long, fifty-seven feet wide, and the trusses are 28 feet high at the middle.

The old bridge was closed to traffic on April 6, and on April 13 was moved to Webster avenue.

The new bridge was opened to traffic September 21.

The bridge is first-class in every particular. The cost of this structure, with some small items, was borne by the North Chicago Street Railroad Company, in accordance with the franchise granting the use of the La Salle street tunnel, and was as follows:

Substructure—Fitz Simons & Connell Co.	$62,500 00
Superstructure—Variety Iron Works, Cleveland, O.	69,875 00
Machinery—Vulcan Iron Works, Chicago	4,187 00
Total	$136,562 00

WEBSTER AVENUE BRIDGE.

The old bridge from Clark street was moved to Webster avenue and while waiting for a foundation was set in the street on the east side of the river.

A contract was let to the Chicago Dredging and Dock Co. for the center pier, protection and end piers.

The entire substructure is of piles and timber and the cost was $11,500.00.

The old bridge was thoroughly overhauled, repaired, painted, and placed in position by the Bridge Department and is almost as good as a new bridge.

EAST TWELFTH STREET VIADUCT.

This structure extends from Clark street to Wabash avenue, completing the longest and finest viaduct in the city.

The cost of this viaduct was paid by the Atchison, Topeka & Santa Fé Railroad Company, and was as follows:

Substructure	$ 34,488 00
Superstructure	175,208 00
Total	$209,736 00

The contractors for the work were: Substructure, Sackley & Peterson, and superstructure, Riter & Conley, of Pittsburgh.

The work was commenced September 10, 1888, and the viaduct opened to traffic November 25, 1889.

The workmanship on both substructure and superstructure is first-class.

THIRTY-FIFTH STREET VIADUCT.

This structure was commenced in August, 1888, and completed in September, 1889.

The total length, including lateral approaches, is 3,340 feet, extending from Parnell avenue on the west to about ninety feet east of Portland avenue, and crossing the tracks of the Pittsburgh, Fort Wayne & Chicago Railway, and the Chicago & Western Indiana Railway.

The viaduct proper is 397 feet long, and is composed of three double roadway steel truss spans.

Several changes and additions to the original plan were made during the progress of the work, accounting, in some measure, for the delay beyond contract time of completion.

The substructure was built by Robert F. Wilson, and the superstructure by A. Gottlieb & Co.

The cost of the viaduct, to be paid by the above named companies, is as follows:

Pittsburgh, Ft. Wayne & Chicago Railway, Substructure	$54,736 71	
Pittsburgh, Ft. Wayne & Chicago Railway, Superstructure	13,857 00	
Total		$ 68,593 71
Chicago & Western Indiana Railroad, Substructure	$39,942 35	
Chicago & Western Indiana Railroad, Superstructure	51,245 00	
		91,187 35
Total Cost		$159,781 06

A plan has been submitted for a subway at Ogden avenue, under the tracks of the Wisconsin Central, Stock Yards & Transit Company, Chicago & North-Western and Chicago, St. Louis & Pittsburgh Railroads, a plate of which is given with this report.

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The estimated cost of a subway in this instance is materially less than that of a viaduct of equal width and traffic capacity, while the cost of maintenance will be nominal compared with the cost of maintaining a viaduct. The life of the subway will also be much longer than that of a viaduct.

REPAIRS TO BRIDGES AND VIADUCTS.

There are now under the direct charge of this Department, not including railroad bridges, forty-eight bridges and thirty viaducts, ten bridges having been added in the annexed territory.

Beyond ordinary repairs on the bridges and viaducts, a large amount of permanent improvements were made on most of the principal bridges and viaducts.

Those having received more or less of renewal and permanent improvements are as follows:

At Rush street bridge, new water closets were built at the south approach for the use of the public to avoid a nuisance which was a growing evil. New storm doors were put up on the engine house and all steam and water pipes were covered with asbestos to guard against frost.

At State street bridge, the old water closets were torn out and new ones built; also both approaches were rebuilt and the bridge replanked.

Dearborn street bridge was knocked off the center the latter part of the season by collision of a steam lumber barge. The bridge was raised up and replaced and more fastenings added to the turn-table and center-step.

The new Clark street bridge was furnished with water closets for public use under both approaches, with broad and commodious stairs on each side of the approaches leading to them. A house was built on the center protection for storing extra machinery.

A pontoon bridge was built and maintained at Clark street during the erection of the bridge.

At Wells street bridge, the turn-table wheels have proved to be porous and soft, and had worn down to such an extent that the pinions were riding on the gear, causing the bridge to turn so hard that the segment gear had to be chipped off clear around the turn-table to allow the bridge to swing. A new set of wheels have been cast and fitted up ready to be put in before navigation opens.

At Lake street bridge, the sidewalk was laid so close to the chords that the sidewalks had to be cut off from end to end on both sides of the bridge, and the coverings of the chords raised up to allow the air to circulate under the covering to prevent rust from destroying the chords, and the whole structure was cleaned and painted with two coats of mineral paint.

At Randolph street bridge, the old piling and shores under the west approach in front of the Crescent Mills gave way, and all had to be taken up and rebuilt.

At Kinzie street bridge, both of the approaches were rebuilt with new timber, new piling put in and bridge replanked.

At Indiana street bridge, the east approach began settling again and had to be jacked up and replanked, and the bridge-house raised up and moved across the river to the southwest corner of the bridge, to a more advantageous point of view, and put in good repair.

At the Chicago avenue bridge, the east approach was entirely rebuilt with new material. ' The roadway from the west approach leading down to the coal yard and Paving Company's yard, a distance of six hundred feet, was replanked, and the approach at the north end of Putman street, connecting with Chicago avenue, was rebuilt.

At Webster avenue, the old Clark street bridge, which had been placed in the street at that point, was set upon the new center pier. The bridge was replanked throughout, and the turn-table furnished with entirely new gearing. A new approach was made, and a new bridge-house built. The entire work was thoroughly cleaned and painted and the protection planked.

At Fullerton avenue bridge, the approaches were rebuilt with new timber and planking, the bridge replanked, and a new four-foot sidewalk built on one side of the bridge. The bridge was thoroughly cleaned and painted, and a new set of turn-table wheels furnished and placed.

At Belmont avenue bridge, Lake View, the structure was completely overhauled. The east stone abutment having been partly carried away by high water, piling was driven, and a substantial pier built in its place. Sheet piling was driven all around the abutment to guard against floods.

Graceland avenue and Sulzer street bridges were repaired.

Forest avenue and Crawford avenue bridges, Jefferson, were replanked.

Milwaukee avenue viaduct was replanked throughout.

At Indiana street viaduct, the west approach was replanked.

At Chicago avenue viaduct, one-half has been cleaned and painted.

Clark street viaduct was replanked.

At Sangamon street viaduct, new sidewalks were built on the south half.

Neatly built houses, for shelter to police officers on duty at bridges, were placed on Dearborn, Clark, Wells, Lake, Adams and Jackson street bridges.

All exposed steam and water pipes on all the steam bridges were covered with asbestos covering, to guard against frost.

At Adams street bridge, a new house was built on the protection, for storing away extra machinery, and the protection was planked all around the turn-table. The locks that were on the bridge had to be removed and others put on; also a house was built on the west end for the Vessel Dispatcher.

Van Buren street bridge was replanked and two new sidewalks and a new center protection built.

At Harrison street bridge, the west approach was rebuilt and bridge replanked; also three new wheels for turn-table fitted up and put in.

Polk street bridge was replanked, new sidewalks and a new bridge-house built, and a new set of turn-table wheels and tracks furnished.

Twelfth street bridge received a blow from a vessel which at the time did not seem serious, but later it was found that considerable damage was done. The stone center was found to be broken and the bridge crowded to the west. At quite a heavy expense the bridge was lifted and the necessary repairs made to the stone underneath and the bridge replaced in position. New fastenings were added to the center-step and turn-table, and twelve new spider rods put in. The bridge was also cleaned and painted.

Eighteenth street bridge had two new steel plates put in center-step.

Twenty-second street bridge was replanked, new sidewalks were built, and the whole structure thoroughly cleaned and painted.

South Halsted street bridge had two new cables put on, floor replanked, and new protection built.

Main street bridge had a new set of turn-table wheels fitted up and put in.

At Deering street bridge, a new bridge-house was built, two storm sheds built and the south approach raised to grade with new piling put under.

Fuller street bridge had a new set of turn-table wheels fitted up and put in.

At Archer avenue bridge, a new protection was built and both approaches replanked.

Thirty-fifth street bridge was knocked off the center by collision with a steam barge. The bridge was raised up and put back to its place, the bridge replanked and the east approach rebuilt and west replanked.

Kedzie avenue bridge over the river, was replanked.

Kedzie avenue canal bridge was replanked.

At Western avenue canal bridge, on the south approach to the bridge, sheet piling had to be driven and braced with timber to prevent it from being washed away by high water.

Ashland avenue canal bridge was replanked, and a new four-foot sidewalk built on one side of the bridge.

At Thirty-ninth street and Ashland avenue bridge, a new bridge-house was built.

Laurel street bridge was replanked.

At Riverdale bridge (Hyde Park), the center-table was repaired.

Chittenden bridge had two new truss-rods and one wheel put in.

Ninety-second street bridge was replanked and both approaches replanked.

Ninety-fifth and One Hundred and Sixth street bridges had necessary repairs done.

On Adams street viaduct, the approach to the bridge was replanked for paving forty feet back; both sidewalks were also replanked.

At Twelfth street viaduct, the west end of the viaduct over the Chicago, Burlington & Quincy Railroad was replanked, and the sidewalk had to be cut off from end to end on both sides of the viaduct, and the covering of the chords raised up to allow the air to circulate under the covering to prevent rust from destroying the chords. It was cleaned and painted with two coats of paint.

Centre avenue viaduct received a thorough overhauling from end to end, and was cleaned and painted with two coats of mineral paint.

Canal and Sixteenth street viaduct was found to be in very dangerous condition. Being a very light structure in the first place, and having been badly corroded by smoke, etc., it was found necessary to strengthen the bottom chords by reinforcing and many new braces and rods. We replaced many of the joists and cross-timbers; also an entire new planking and complete scraping and painting.

The expenditure for the year ending December 31, 1889, on the different bridges and viaducts was as follows:

BRIDGES.

Rush street bridge	$7,263	02
State street bridge	2,969	84
Dearborn street bridge	2,120	80
Clark street bridge	3,754	44
Wells street bridge	2,792	80
Pontoon bridge	2,849	69
Lake street bridge	5,547	04
Randolph street bridge	2,545	17
Madison street bridge	1,589	58
Adams street bridge	4,286	82
Jackson street bridge	2,560	77
Van Buren street bridge	5,469	45
Harrison street bridge	2,073	61
Polk street bridge	2,049	18
Twelfth street bridge	8,016	57
Eighteenth street bridge	2,148	50
Twenty-second street bridge	10,849	01
South Halsted street bridge	8,444	00
Main street bridge	4,554	60
Deering street bridge	2,724	30
Ashland avenue	2,854	56
Western avenue bridge	1,644	76
Fuller street bridge	699	68
Archer avenue bridge	5,297	89
Thirty-fifth street bridge	2,904	21
Western avenue and canal bridge	863	82
Kedzie avenue bridge	211	54
Thirty-ninth street bridge	484	69
Laurel street bridge	286	00
Ninety-fifth street bridge	66	81
One Hundred and Sixth street bridge	76	81
Riverdale bridge	176	81

Chittenden bridge	$ 106 82	
Ninety-second street bridge	487 25	
Hyde Park water works	100 00	
Canal pumping works	1,650 00	
Kinzie street bridge	4,489 27	
Indiana street bridge	979 73	
Erie street bridge	8,294 38	
Chicago avenue bridge	4,907 50	
North Halsted street bridge	1,497 26	
Halsted street canal bridge	3,819 12	
East Division street bridge	5,050 46	
West Division street bridge	1,686 67	
North avenue bridge	897 50	
Clybourn place bridge	794 49	
Webster avenue bridge	9,036 79	
Fullerton avenue bridge	2,301 98	
Belmont avenue bridge	395 86	
Jefferson bridge	111 98	
Forest Glen bridge	5 44	
Total		$141,788 77

VIADUCTS.

Dearborn street viaduct	$ 359 51	
Clark street viaduct	749 32	
Wells street viaduct	5 19	
Lake street viaduct	1,340 74	
Madison street viaduct	403 02	
Harrison street viaduct	1,474 11	
Twelfth street viaduct	370 82	
Eighteenth street viaduct	15 00	
Sixteenth and Canal street viaduct	6,507 66	
Center avenue viaduct	7,937 79	
Blue Island avenue viaduct	625 93	
Indiana avenue viaduct	830 23	
Chicago avenue viaduct	805 12	
Halsted street viaduct	416 62	
Milwaukee avenue viaduct	3,478 04	
Desplaines street viaduct	709 43	
Halsted and Kinzie street viaduct	492 79	
Sangamon street viaduct	669 07	
Total for bridges		$141,788 77
Total for viaducts		27,190 39
Grand Total		$168,979 16

The bridge at Thirty-fifth street is almost beyond repair, and should immediately be replaced by a new one.

The Ninety-fifth street bridge was condemned last summer, but was repaired so that it might have stood through the winter, had not a dredge sunk the pontoon, making the bridge a total wreck.

Plans have been made for a new bridge at that place, as it is very badly needed, as the distance from Ninety-second street to One Hundreth and Sixth street is one and three-quarter miles.

NEW TUNNELS—WATER.

Land Tunnel System.

At the close of the year 1888 there remained only a few hundred feet of land tunnel to be constructed. The connection between Peck court shaft and Fifth avenue shaft was made on January 30, 1889, thus completing the chain of tunnels from Park row shaft to Peck court shaft, and thence across the city to the Harrison street shaft at the site of the new Central pumping station.

The tunnel connection between Park row shaft and the shaft in front of the proposed South Side pumping station, at Fourteenth street, was made on March 28, thus completing the entire land tunnel system.

The general character of ground encountered in these land tunnels was dry hard-pan, but running water and soft, swelling clay were met with in many places throughout the system, except in the stretch between Desplaines street and Fifth avenue, where excellent ground was found, as a rule.

The total amount of land tunnel work for the year is as follows:

Eight-foot tunnel	202 feet.
Seven-foot tunnel	313 feet.
Six-foot tunnel	1,831 feet.

SUMMARY OF LAND TUNNEL WORK, COMPLETE.

Constructed by City.

Three shafts	182 feet.
Six-foot tunnel	480 feet.

Constructed by Contractor.

Three ten-foot shafts	222.5 feet.
Three-foot tunnel	466.0 feet.
Seven-foot tunnel	7,053.0 feet.
Six-foot tunnel	2,219.0 feet.

Lake Tunnel System.

As described in the last annual report, an eight-foot tunnel was started eastward under the lake in June, 1888, and carried forward 284 feet. At this point soft, swelling clay was encountered in the roof, and, after trying many expedients, the contractor was permitted to build two six-foot tunnels instead of the one eight, as originally intended. It was expected that the ground would be better about 600 feet east of the break water, and that when the two six-foot tunnels would reach that point they might again be united into one eight-foot tunnel. Work progressed favorably on the two six-foot tunnels, and an average of 300 feet in each tunnel was finished by January 1, 1889.

During the first three months of the year 1889 work was carried on continuously in the two parallel six-foot tunnels. The excavation was in the sand and gravel bed which overlies the hard-pan belt, with the top of the excavation reaching nearly to the soft clay overhead. Besides the difficulties caused by the nature of the soil, a large volume of water was running from this gravel and sand bed.

These difficulties became greater as the tunnels progressed eastward.

After reaching a point fifteen hundred feet from shore it was decided to suspend work from the shore end and sink a shaft at the government breakwater on the line of the tunnel. It will be understood that as far as possible the excavation for the tunnel is kept in the dry hard-pan stratum. This hard-pan belt, so far as elevation is concerned, appears to conform roughly to the lake bottom. The bed rock, as well as the strata overlying, dips eastward from shore in the same way. The sand and gravel bed is directly under the soft clay and covers the hard-pan stratum. Underneath the hard-pan is a wet silt and quicksand bed which overlies the bed rock. Both strata, the one over the hard-pan and the quicksand underneath, carry considerable quantities of water. When met with in the shaft work the water is invariably under a head of forty or forty-five feet.

In the first three-quarters of a mile from shore, the lines of stratifications are well marked, and the hard-pan belt averages eleven feet in thickness, as shown by borings made from the surface and afterwards confirmed in the tunnel. It is, however, quite undulating.

In running out level from shore the excavation, then, may start in the hard-pan and continue in it for some little distance, but finally, owing to the dip described above, the roof will reach into the gravel bed above.

A six-foot tunnel can be constructed in the gravel but the progress is comparatively slow. In order, then, that the tunneling might again be in the hard-pan, a shaft at the government breakwater was built 2,300 feet out from shore on the line of the tunnel axis.

BREAKWATER CRIB AND SHAFT.

Work was commenced on a timber crib protection for this point on March 1. It was towed out on March 27 and placed in position. It was sunk immediately by filling with rip-rap. The crib is approximately eighty feet by forty feet, and built of twenty-six tiers of 12x12 timbers with a well hole forty feet by twenty feet. Work on the ten-foot cast iron shaft was begun in the latter part of April. No difficulty was experienced until reaching the gravel stratum, where a large stream of water started, rising thirty-seven feet in the shaft. From this point down the work was difficult and tedious.

Pumping had to be kept up incessantly, and owing to the grit suspended in the water, the pumps were continually cutting out. By means of oak sheathing, driven into the bottom, the sides were protected, and the excavation proceeded and was lined with brick work below the bottom of the eighty feet of cast iron, the bottom of the shaft being directly on the top of the quicksand bed. This breakwater crib has room for one more shaft. It is intended to be used for a shore-intake and is provided with ports in case it should be used for this purpose.

PORTION BUILT FROM BREAKWATER SHAFT.

A six-foot tunnel fifty feet in length was run northward from the breakwater shaft, and from this lateral tunnel four six-foot tunnels were started at right angles, two tunnels heading westward toward shore to unite with the two from Park row shaft, and two more heading eastward in the direction of the outer intake. Work has proceeded with varying progress in these four tunnels. Connection with the Park row ends was made in the two tunnels on August 22 and 31 respectively. There was a total of 2,919 feet of six-foot tunnel built eastward from the breakwater up to January 1, 1890; 1,491.50 feet in the north tunnel, and 1,427.50 feet in the parallel or south tunnel. In these tunnels the excavation at first was entirely in the hard-pan, and dynamite was used freely to expedite the work; but after reaching a point 600 feet east of the breakwater, the wet sand and gravel was again encountered in the roof, causing the progress to decrease considerably.

At the close of the year the excavation was about one-half in the gravel overhead and one-half in the hard-pan, with seven feet of the latter material underneath.

INTERMEDIATE 2½ MILE CRIB.

This is a pentagonal timber structure of twenty-six feet maximum width of well, and forty-seven and one-half feet side of outer pentagon. After twelve courses of timber had been laid the structure was launched, and the building was continued while the crib floated.

When twenty-eight feet of the structure had been built, it was ballasted with dredgings to give it more draught, and on June 25, being then forty feet high and drawing fifteen feet of water, it was towed out into the lake and placed in position in thirty-seven feet of water, and sunk by filling with rip-rap.

The body of the crib was completed early in July, and work on the tower and house was begun soon after.

Work on the ten-foot cast iron shaft was immediately begun, and proceeded rapidly until a depth of seventy-three feet below datum was reached. No water had been encountered in the excavation up to this point.

The shoe had passed through thirty-two feet of soft clay and six feet of gravel. The mining was carried two feet below the shoe, and had reached the hard-pan, when suddenly the water began running from the bottom of the gravel stratum, and, increasing in volume, soon rose forty feet in the shaft, reaching a level with the *bottom* of the lake.

The sand and gravel coming in with the water were piled up in the shaft bottom eight feet. The pumps would easily remove the clear water, but, when reaching the thick sand and gravel, would give out. The shaft was loaded with 200 tons of pig iron, in the hope that the shoe would cut its way into the hard-pan and shut out the water from above. The shaft moved down very slowly—an amount almost imperceptible—from day to day.

During the course of the long delay the shaft had sunk six feet into the hard-pan, but as fast as the shoe moved into the clay the water followed down, cutting its way into the hard-pan and under the shoe, and pouring into the shaft in a large stream. The shoe now rests at 83.5 feet below datum. The pig iron has been removed, as it was found that the shaft would sink no further, and it was not considered advisable to load it with any greater weight.

An inside steel shield will be lowered into the shaft and forced into the bottom by means of jack-screws.

This will form a protection for the sides of the excavation and allow of brick-work being built in. The water can be more easily handled and will allow of more continuous mining on the bottom. Only a total of about sixteen feet of shaft remained to be built at the close of the year. The borings which show an average of eleven feet of hard-pan near the shore, show a much greater thickness at the two and one-half mile point. The thickness at this point is about twenty feet, if we include an intermediate silt vein of eight or nine feet thickness. This intermediate vein gave no trouble in the borings, but in places was a little wet. It must still be classed as doubtful.

Up to this date the material mined from the shaft has been identical with that shown by the borings.

The difficulty has been caused entirely by the water-bearing silt and gravel stratum, between the soft clay and hard-pan. This material gave the same trouble at the breakwater shaft, and at times is very troublesome in the tunnel also. The crib and house have a slight lean towards the northwest, owing to the fact that the flow of water and silt were mostly from that quarter. The structure now seems to be perfectly at rest, and the crews are quartered on it. The damages sustained by the house in several severe storms have been repaired in a substantial manner.

SUMMARY OF LAKE SHAFT AND TUNNEL WORK FOR YEAR 1889.

Six-foot tunnel	6,593 feet	
Ten-foot shaft	180.8 feet	176.0 cast iron. 4.8 brick.

GENERAL SUMMARY LAKE TUNNEL WORK.

Eight-foot tunnel	263.0 feet
Six-foot tunnel	7218.0 feet
Ten-foot shaft	180.8 feet

FOUR-MILE OUTER CRIB.

Work on the construction of the four-mile caisson was begun on January 4, 1889. Four tiers and a portion of the fifth tier of the 12x12 timber composing the bottom grillage, were framed and in place before the structure was launched. Five heavy Howe trusses, designed to support the inner well bottom, as well as the outer oak planking, were also in position.

The structure was launched on March 11, and the construction of the grillage bottom continued.

Six openings for ports were left in the solid timber, and lined with oak planking. On June 24, as completed ready for the iron-work, the structure had fifteen tiers of 12x12 timbers, composing the outer grillage, and two tiers of 12x12 timbers in the inner portion or well. A twelve-foot circular opening was left in the bottom of the inner well, and a section of the cast iron shaft was set in and caulked.

The iron-work complete, including inner and outer steel shell, bulk-heads, angle-irons, brackets, etc., was all riveted and in place on August 16. The diameter of the structure is 123 feet below at the shoe, and 118 feet at the top of the shell. The diameter of the inner well is seventy feet. The space between the inner and outer shells, averaging twenty-five and one-half feet across, is divided into twenty-four separate compartments by means of the bulk-heads. The work of filling these compartments with concrete, as provided in the specifications, was begun shortly before August 16. After the iron-work was completed, a large force of men was set to work on the concreting.

A tower and platform were built on the five Howe trusses mentioned, and on this platform were rigged two derricks with boiler, hoisting engines, etc. The concrete was hoisted from scows, by means of the derricks, and lowered in buckets into the compartments. The crib was loaded so as to draw an average of fifteen feet of water.

On September 14, it was towed from its position in the Fitz Simons & Connell Company's slip, near the mouth of the Chicago river, to a point near the end of the government exterior breakwater. Here loading was continued until it had a draught of twenty-seven feet of water, when it was towed to the four-mile point, and sunk on October 10 by means of pumping and scuttling.

Concreting was continued until December 1, whenever the weather would permit. On this latter date the work was closed down for the winter, with a little more than half, about 6,000 yards, the total amount of concrete in place. The crib stands in thirty-nine feet of water, with its top about six feet above mean stage and very nearly level, dipping very slightly northward. It has withstood several severe storms, without sustaining any damage or displacement.

The lake bottom at this spot was ascertained in advance to be nearly a horizontal plane for the extent of the crib area, and to consist of moderately soft clay covered by a thin crust of sand.

CENTRAL PUMPING STATION.

The engine foundations were completed in March, and work begun on the walls of the building.

In May, the building having been sufficiently advanced, the erection of the engines was begun, and has proceeded without interruption to the present time.

Owing to a claim, advanced by parties owning the land west of the pumping site, for the ownership of ten feet facing on Sebor street, which has been carried into the courts, the party selling the property to the city has been unable to give us possession of a strip ten feet wide by about 120 feet long, thereby delaying the building of the west wall of the boiler-room and coal shed, and preventing the setting of but one battery of boilers.

The engines and all the rest of the work are well on towards completion, and we hope to be able to make a test by the latter part of April.

Only one engine can be worked at a time, however, until the land claim is settled and the second battery of boilers set.

SOUTH SIDE PUMPING STATION.

The piling for the engine foundations was finished in February, as was also the fifty-foot piling for the foundation wall of the main building. During February the work on the piling in the addition to the building (for the proposed high pressure engine) was in progress. This was entirely completed by May 1. The piling for an extra chimney in the northwest corner of the lot was also finished. The work of excavation in the main building was soon after gotten under way. A strong frame-work of 12x12 timbers, securely braced from bank to bank, served to hold the soft clay in position. The top of these timbers was at datum, and the frame-work reached downward to the top of the engine foundation piles, which had been driven to a point twenty feet below datum by means of a follower. These engine foundation piles average thirty feet in length. The banks, from datum or top of the timbers upward, were sloped off.

The piles, when all uncovered, were sawed to a level at 21.5, capped and planked with 12x12 timbers.

On this planking was laid a sixteen-inch course of stone on each of the four foundations, and on this course of stone was started the brickwork of the engine foundation proper. The two easterly foundations were about completed to the elevation of 21.5 above datum or engine-room floor, at the close of the year, while the west foundations were finished to the datum line.

Nothing further has been done in the addition to the main building on the south. The house and engine piles are in place, and the earth has been removed down to the datum line.

BORINGS.

A number of advance borings were made by the city, under the supervision of the engineer. These borings were discontinued on September 19.

As pointed out in the report on the intermediate crib and breakwater crib, the borings have proved very correct.

In no instance has there been any discrepancy of importance between the main borings taken from the surface and numerous supplementary borings made in the tunnel as it progressed. Moreover, the nature of the soil encountered in the tunnels has been identical with that shown by the borings. Quite a number of borings have been taken along the line of the tunnel between the shore and the breakwater, and two have been taken 600 feet east of the breakwater. Two were also taken at the two and one-half mile crib; but between these points, for a distance of nearly two miles, the ground is unexplored. Nor do we know anything concerning the stratification at the four-mile point.

LAKE VIEW TUNNEL.

Owing to the inadequate supply of water furnished by two twenty-inch pipes, and short distance of the intake from the shore, the authorities of the former city of Lake View decided to construct a tunnel with a length of 5,000 feet.

The contract was let for the construction thereof to Messrs. Shailer & Schniglau, by the proper officers of said city, in May, 1889.

The work of sinking the shore shaft was commenced June 5, and on June 29 solid rock was reached at a depth of seventy feet below city datum.

The diameter of the shaft is ten feet inside.

The material developed in sinking the shaft is as follows, viz.:

Lake shore sand	3.0 feet.
Lake shore pebbles	1.0 feet.
Clean, sharp sand	7.0 feet.
Coarse sand and gravel	7.0 feet.
Soft blue clay	24.0 feet.
Coarse, black sand	2.0 feet.
Brown hard-pan	14.0 feet.
Boulders	1.5 feet.
Gray loam, gravel and boulders	14.5 feet.

The work of sinking the shore shaft occupied twenty-one working days, making the average daily progress about three and one-half feet.

The tunnel is six feet in internal diameter, and is lined with brick masonry not less than eight inches thick.

On July 1, the work of drifting in the tunnel proper was commenced, and has progressed without interruption.

The drift has been carried through the stratum of gray loam overlying the rock, and for the first 500 feet east of the shore shaft much difficulty was experienced. The roof was constantly caving in. The utmost endeavors were used to prevent it, but the pressure of the material above forced the softer material near the lower quarters into the drift, leaving the roof without support. East of the 500-foot mark, which was reached October 25, the material above the rock has been dry, not difficult to keep in place, and may be considered reasonably favorable material for such a tunnel.

The principal impediment and the primary cause of the large amount of extra work met with, has been the solid rock, which was first encountered in the bottom of the drift at thirty-one feet east of the shaft.

The rock has not, since its first appearance, dropped below the grade line of the tunnel. The average height of the rock in the face of the drift has been three feet above the bottom of the invert.

Seventy-seven and one-half feet of shore shaft, ten feet in diameter, and 969 feet of tunnel, six feet in diameter, have been completed to January 1, 1890.

One hundred and fifty-two working days have been occupied in building the tunnel, making the average daily progress about six and one-half feet.

The completed work is in excellent condition, and is very satisfactory as to workmanship and material used.

Borings have been taken at 1,800 feet out, which indicate rock in the drift at that point.

The entire charge of the work has fallen on Mr. Charles V. Weston, who has given thorough satisfaction.

The question has been raised in regard to this work, whether it should not be extended further into the lake; but the pressing need for the early use of the tunnel would seem to render this impracticable, unless means be provided by use of a temporary intake, to use a portion of the tunnel, and work the balance from the outer end, or else put down two intermediate shafts, using one for an intake and the other for a working shaft.

This would add something to the cost of the work, as all the material would have to be taken out on scows.

OGDEN DITCH DAM.

This dam is at present in very good condition.

The channel around it on the south side has been refilled, paving replaced when it had settled and general repairs made.

It will probably require nothing more than ordinary care and repairs during 1890.

QUALITY OF WATER.

The quality of the water pumped during the year has generally been good, with the exception of a few days in July and August, when, owing to the excessively heavy rainfall of August 27, some of the river water was carried out to and surrounded the crib.

LAKE CRIB.

This structure is in general good order, but will require some patching and whitewashing and perhaps some painting on the crib-keeper's house.

The light tower, however, sways badly in a heavy storm and should be taken down and replaced by a light iron structure.

The new breakwater performs its duty well.

CANAL PUMPING WORKS.

At the beginning of the year the engines were in a terrible condition, but a contract was made February 5, for the repair of three of them, taking one at a time.

Before the three were repaired the fourth one gave out entirely, and had to be temporarily patched up to tide us over the hot season.

At the end of the year all the engines had been thoroughly repaired and are now ready for duty.

It was found necessary to stop the pumps in order to clean out the mass of bark and sludge that had been deposited therein to such an extent that the pumps could by no means work to anything like their capacity.

The boilers have been repaired and four new sets of flues put in.

New blow-off valves have been put in all boilers, and two new stop-valves and two expansion joints in main steam pipes.

A new floor has been laid in the engine rooms.

Two new coal sheds and an office at the scales have been constructed.

The bridge over the inlet has been put in thorough repair; the roadway from Ashland avenue to the scale house planked, and the brick floors in the boiler rooms repaired and cemented.

The neck of the old weir was removed from the outlet channel, making a difference of about nine-tenths of a foot in the head pumped against, and a consequent saving in fuel.

These works will not require any extraordinary repairs or expenditures for some time to come, except the cost of cleaning the inlet channel.

TABLE SHOWING THE OPERATION OF THE ENGINES AT THE CANAL PUMPING WORKS FOR 1889.

1889.	Number of hours per month.				Average number of revolutions per minute.	Average height of water in river.	Average height of water in canal.	Average head pumped against.	Number of pounds of coal used per month.	REMARKS.
	Engine No. 1.	Engine No. 2.	Engine No. 3.	Engine No. 4.						
January....	96	720	744	648	71¼	4	39	35	1,288,440	....
February...	......	672	672	672	71½	3	40	37	1,373,885	Engine No. 1 under repair.
March	......	678	744	744	72⅓	3	38	35	1,522,395	
April.... ..	......	720	686	645	72½	2	38	36	1,556,605	
May	......	740	744	743	72	3	38	35	1,434,880	
June..... .	694	720	17	......	71⅛	12	31	19	1,494,510	Nos. 3 and 4 under repair
July.	669	670	309	670	71	13	45	32	1,918.350	....
August....	614	614	614	614	72¼	9	45	36	1,495.600	....
September..	718	721	721	721	73	7	44	37	1,368,800	....
October	744	724	724	724	72⅛	6	45	39	1,478,240	....
November..	710	72	714	705	73¾	3	39	36	1,327,685	No. 2 under repair.
December..	382	672	720	720	72	1	38	37	1,261,905	....
TOTALS.....	4,627	7,723	7,309	7,606	......	......	......	.....	17,521,295	....
AVERAGES..	......	......	.....	......	72.09	5½	40	34½	....	....

FULLERTON AVENUE PUMPING WORKS.

The pump at this station has been in operation 91.5 per cent. of the entire time during the year with an average of 64.0825 revolutions per minute and an average head of 2.05 feet.

The engines are in fair condition, and will need few repairs during 1890.

New tubes are needed in the middle boiler, otherwise the boilers are in good condition.

The water has invariably been pumped from the lake into the river.

The following table will show the operations of the works during the year:

TABULAR STATEMENT OF THE FULLERTON AVENUE PUMPING STATION, 1889.

1889. MONTHS.	Number of hours run per month.	Total number of Revolutions per month.	Average number of Revolutions per month.	Average head of Water against Pumps.	Total number of Cubic Feet of Water pumped into the river.	Average number of Cubic Feet pumped per Minute.	Pounds of Coal consumed for Pumping per Month.	Pounds of Coal consumed per Month for heating boilers.	MEMORANDA.
January	725	2,844,919	65.61	2.24	590,322,060	13,579	422,500	2,000	
February	649	2,581,366	66.27	2.28	521,150,100	13,383	402,000	1,000	
March	720	2,824,599	65.77	2.14	568,108,710	13,141	419,500	1,000	
April	703	2,719.492	64 51	2.00	533,978,590	12,659	394,750	1,000	
May	503	2.107,960	68.32	2.25	411,441,335	13,641	320,000	1,000	Stopped May 2, 12 00 M. for repairs. Started May 11, 8.00 a. m.
June	640	2,619,592	68.26	2.24	521,066,431	13,567	401,750	3,000	
July	624	2,439,026	62.26	1.88	483,229,000	12,892	354,500	1,500	Stopped 3½ days on account of high water.
August	716	2,543,860	60.72	1 68	524,282,490	11,971	376,900	2,000	
September	700	2,664,895	63.23	1.82	516,140,730	12,280	356,000	1,000	
October	716	2,836,356	66.20	1.96	560,263,192	13,050	422,250	2,000	
November	685	2,696,570	64.03	2.05	547,320,630	13,326	409,850	1,000	
December	642	2,427,485	62.71	2.05	504,083,240	13,086	395,500	4,000	Stopped 3¼ days to take up screen gate.
TOTALS	8,023	31,306,120	64.825	2.05	6,281,386,508	13,048	4,675,500	20,500	

VESSEL DISPATCHER'S REPORT.

CHICAGO, January 15, 1890.

W. R. NORTHWAY, ESQ.,
City Engineer.

SIR:—I have the honor to transmit herewith my report of the operation of the Vessel Dispatcher's office for the year ending December 31, 1889.

The river telephone system, after several years of practical use, has demonstrated its importance in facilitating the rapid movement of vessels in our harbor and so regulated the opening and closing of the river bridges as to obviate, to a great extent, the delays and blockades of street traffic which existed previous to the adoption of the system.

In an aggregate the percentage of time the bridges were closed for the public is $3\frac{11}{13}$ above that of last season or $92\frac{2}{13}$ per cent.

There are now in all two hundred and seventy-six (276) vessels of all kinds in winter quarters in the Chicago river, two hundred and seven (207) being sailing vessels and sixty-nine (69) steamers. One hundred (100) sailing vessels and twenty-eight (28) steamers constitute the grain fleet for the lower lakes and Georgian Bay, while fourteen (14) steamers and one hundred and forty (140) sailing vessels comprise the lumber fleet. Eight (8) are passenger steamers, which go into active service again upon opening of navigation.

The combined carrying capacity of the grain fleet is 5,043,000 bushels—a decrease of 223,000 bushels from last winter. These figures, however, do not necessarily indicate a decrease in the total tonnage, for the addition of larger lake craft during the past season fully makes up the deficiency caused by changes, loss and sale of the smaller vessels, as will be clearly demonstrated by the following table of arrivals and clearances for the period of 1883 to 1889 inclusive:

YEAR.	ARRIVALS.		CLEARANCES.		TOTAL.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
1883	11,203	3,555,586	11,271	3,743,574	22,474	7,299,160
1884	10,513	3,481,957	10,640	3,489,666	21,153	6,971,623
1885	9,846	3,347,647	9,910	3,364,169	19,756	6,711,816
1886	10,180	3,546,309	10,267	3,594,549	20,447	7,140,858
1887	10,828	3,868,465	10,920	3,989,615	21,748	7,858,000
1888	10,158	3,990,921	10,308	4,134,064	20,466	8,124,985
1889	9,552	4,417,415	9,462	4,403,634	19,014	8,821,049

REPORT OF THE VESSEL DISPATCHER'S OFFICE,

FROM MAY 1 TO DECEMBER 15, 1889.—BETWEEN THE HOURS OF 8:00 A. M. AND 9:00 P. M.

BRIDGES.

	RUSH.		STATE.		DEARBORN.		WELLS.		LAKE.		RANDOLPH.		MADISON.		ADAMS.		JACKSON.	
Number of days in service......	229		229		164		229		229		229		229		62		182	
	Hrs.	Min.	Hrs.	Min.	Hrs.	Min	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.
Total time open.............	434	20	467	11	273	4	333	28	345	44	369	29	301	51	68	47	265	39
Total No. of vessels passed through	12,349		12,088		8,095		11,785		9,737		9,855		9,544		1,781		7,317	
Total number of swings.........	7.505		7,638		5,279		6,925		6,431		6,700		6,244		1,305		4,893	
Average number of vessels per day..	53.97 +		52.78 +		49.35 +		51.46 +		42.52 +		43.03 +		41.67 —		28.72 +		40.20 +	
Average number of swings per day..	32.77 +		33.35 +		32.19 +		30.24 —		28.08 +		29.26 +		27.22 +		21.05 +		26.88 +	
Average number of vessels per swing	1.64 +		1.57 +		1.53 +		1.70 +		1.51 +		1.47 —		1.53 +		1.36 +		1.49 +	
	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
Average time consumed per vessel..	2	6	2	19	2	14	1	42	2	8	2	15	1	54	2	19	2	10
Average time open per swing....	3	28	3	40	3	6	3	1	3	13	3	18	2	54	3	9	3	11
Average time open per hour.....	4	44	5	6	4	10	3	38	3	46	4	2	3	18	2	46	3	39
Average time open per day......	113	48	122	24	99	54	87	22	92	55	96	30	79	52	66	34	87	34

REPORT OF THE VESSEL DISPATCHER'S OFFICE—CONTINUED.

FROM MAY 1 TO DECEMBER 15, 1889.—BETWEEN THE HOURS OF 8:00 A. M. AND 9:00 P. M.

BRIDGES.

	VAN BUREN		HARRISON.		POLK.		TWELFTH.		EIGHTEENTH.		KINZIE.		INDIANA.		ERIE.		CHICAGO AVE.	
Number of days in service.......	229		228		229		193		186		224		229		229		229	
	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.
Total time open	400	38	478	51	393	39	314	54	376	43	555	33	265	31	205	18	209	14
Total No. of vessels passed through	9,429		9,307		9,149		7,465		6,720		12,302		4,157		3,865		3,909	
Total number of swings	6,184		5,945		6,303		5,405		4,736		7,235		3,458		3,337		3,445	
Average number of vessels per day.	41.17 +		40.82 +		39.95 +		38.68 +		36.16 +		54.92 +		18.15 +		16.87 —		17.07 +	
Average number of swings per day	27.00 +		26.05 +		27.52 +		28.00 +		25.46 —		32.30 +		15.08 +		14.57 +		15.04 +	
Average number of vessels per swing	1.54 +		1.57 +		1.45 +		1.38 +		1.42 +		1.70 +		1.20 +		1.16 +		1.34 +	
	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
Average time consumed per vessel..	2	33	3	5	2	35	2	32	3	22	2	43	3	50	3	11	3	13
Average time open per swing.....	3	53	4	50	3	45	3	30	4	46	4	36	4	37	3	41	3	38
Average time open per hour......	4	33	5	15	4	18	4	5	5	4	6	12	2	54	2	14	2	17
Average time open per day......	104	9	126	34	103	8	97	54	121	31	148	40	69	57	53	47	54	48

REPORT OF THE VESSEL DISPATCHER'S OFFICE,

FROM MAY 1 TO DECEMBER 15, 1889.—BETWEEN THE HOURS OF 7:00 A. M. AND 7:00 A. M.

BRIDGES.

	RUSH.		STATE.		DEARBORN.		WELLS.		LAKE.		RANDOLPH.		MADISON.		ADAMS.		JACKSON.	
Number of days in service......	229		229		164		229		229		229		229		62		182	
	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.	Hrs.	Min.
Total time open.............	680	48	668	13	374	12	463	35	463	25	470	59	402	46	89	43	341	20
Total No. of vessels passed through	17,679		16,390		10,880		15,731		12,621		12,787		12,431		2,269		9,153	
Total number of swings......	11,244		10,756		7,522		9,873		8.550		8,993		8,369		1,708		6,819	
Average number of vessels per day.	77.20 +		71.57 +		66.34 +		68.69 +		55.11 +		55.83 +		54.16 +		36.60 +		50.29 +	
Average number of swings per day..	49.10 —		46.96 +		45.86 +		43.11 +		37.34 +		39.27 +		36.55 +		27.55 +		34.72 +	
Average number of vessels per swing	1.57 +		1.52 +		1.45 +		1.59 +		1.47 +		1.42 +		1 49 +		1.32 +		1.45 +	
	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
Average time consumed per vessel..	2	24	2	27	2	38	1	46	2	12	2	12	1	56	2	22	2	24
Average time open per swing....	3	46	3	44	2	59	2	49	3	15	3	8	2	53	3	9	3	14
Average time open per hour.....	7	26	7	18	5	42	5	36	5	35	5	0	4	24	3	37	4	41
Average time open per day.....	178	19	175	47	136	53	121	37	121	24	123	24	105	32	86	49	112	25

REPORT OF THE VESSEL DISPATCHER'S OFFICE—CONTINUED.

FROM MAY 1 TO DECEMBER 15, 1889.—BETWEEN THE HOURS OF 7:00 A. M. AND 7:00 A. M.

BRIDGES.

	VAN BUREN.	HARRISON.	POLK.	TWELFTH.	EIGHTEENTH.	KINZIE.	INDIANA.	ERIE.	CHICAGO AVE.
Number of days in service.......	229	228	229	193	186	224	229	229	229
	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.
Total time open.............	523 21	621 26	516 31	410 03	466 37	697 29	321 52	247 21	308 28
Total No. of vessels passed through.	12,012	11,673	11,469	9,483	8,826	14,467	4,886	4,624	4,605
Total number of swings........	8,161	7,891	7,890	6 922	5,885	8,790	4,090	4,033	4,172
Average number of vessels per day..	52.45+	51.19+	50.08+	48.87+	44.76+	64.58+	21.12+	20.19+	20.11+
Average number of swings per day.	35.63+	34.61+	34.45+	35.86+	31.61+	39.24+	17.86+	17.61—	18.22+
Average number of vessels per swing	1.47+	1.48+	1.45+	1.36—	1.41+	1.65+	1.18+	1.14+	1.10+
	Min. Sec.	Min. Sec.	Min. Sec.	Min. Sec.	Min. Sec.	Min. Sec.	Min. Sec.	Min. Sec.	Min. Sec.
Average time consumed per vessel..	2 37	3 12	2 42	2 36	3 22	2 53	4 00	3 12	3 57
Average time open per swing....	3 51	4 43	3 56	3 33	4 45	4 46	4 43	3 41	4 22
Average time open per hour......	5 44	6 49	5 38	5 19	6 16	7 47	3 31	2 42	3 19
Average time open per day......	137 7	163 30	135 19	127 28	150 52	186 47	84 19	64 48	79 31

The electric light system in vogue along the river fronts must be acknowledged, even by ordinary observers; as a great facilitator not only to navigation, but also to night street traffic and pedestrians, and hence no further words relative to its usefulness need to be lost here, except that it is more than commendatory in the authorities to keep it up during the season of navigation and otherwise with as few interruptions as it has.

Very respectfully,

R. PRINDIVILLE,

Vessel Dispatcher.

FIRE, POLICE, AND ELECTRIC LIGHT STATIONS.

The following buildings have been designed and superintended by this Department, during the year 1889:

FIRE DEPARTMENT.

Three-story and basement Fire Engine House, at 460 Webster avenue. Geo. L. Murchie, contractor. Cost	$10,255 00
Two-story and basement Fire Engine House taken down and rebuilt, at 758 Congress street. Hausen & Wilke, contractors. Cost	5,975 00
Two story and basement Fire Engine House, with tower, at 543 Jane street. Geo. L. Murchie, contractor. Cost	10,390 00

POLICE DEPARTMENT.

Two-story and basement Police Station and Patrol House, at West North avenue and Wright street. Geo. Messersmith, contractor. Cost	11,995 00
Addition to Police Station, at Thirty-fifth street, near Halsted street. Geo. L. Murchie, contractor. Cost	7,250 00
Addition to Police Station and Fire Engine House, at Larrabee street and North avenue. Hausen & Wilke, contractors. Cost	4,940 00

ELECTRIC LIGHT STATIONS.

Electric Light Plant, at Chicago avenue and Sedgwick street. Cost..........	$ 14,198 00
Electric Light Plant, at Rice and Lincoln streets. Cost......................	14,198 00
Electric Light Plant, at Throop street, near Van Buren street. Cost........	14,198 00
Pumping Station, at West Harrison street, uncompleted. Estimated cost.......	301,897 65

HOUSE OF CORRECTION.

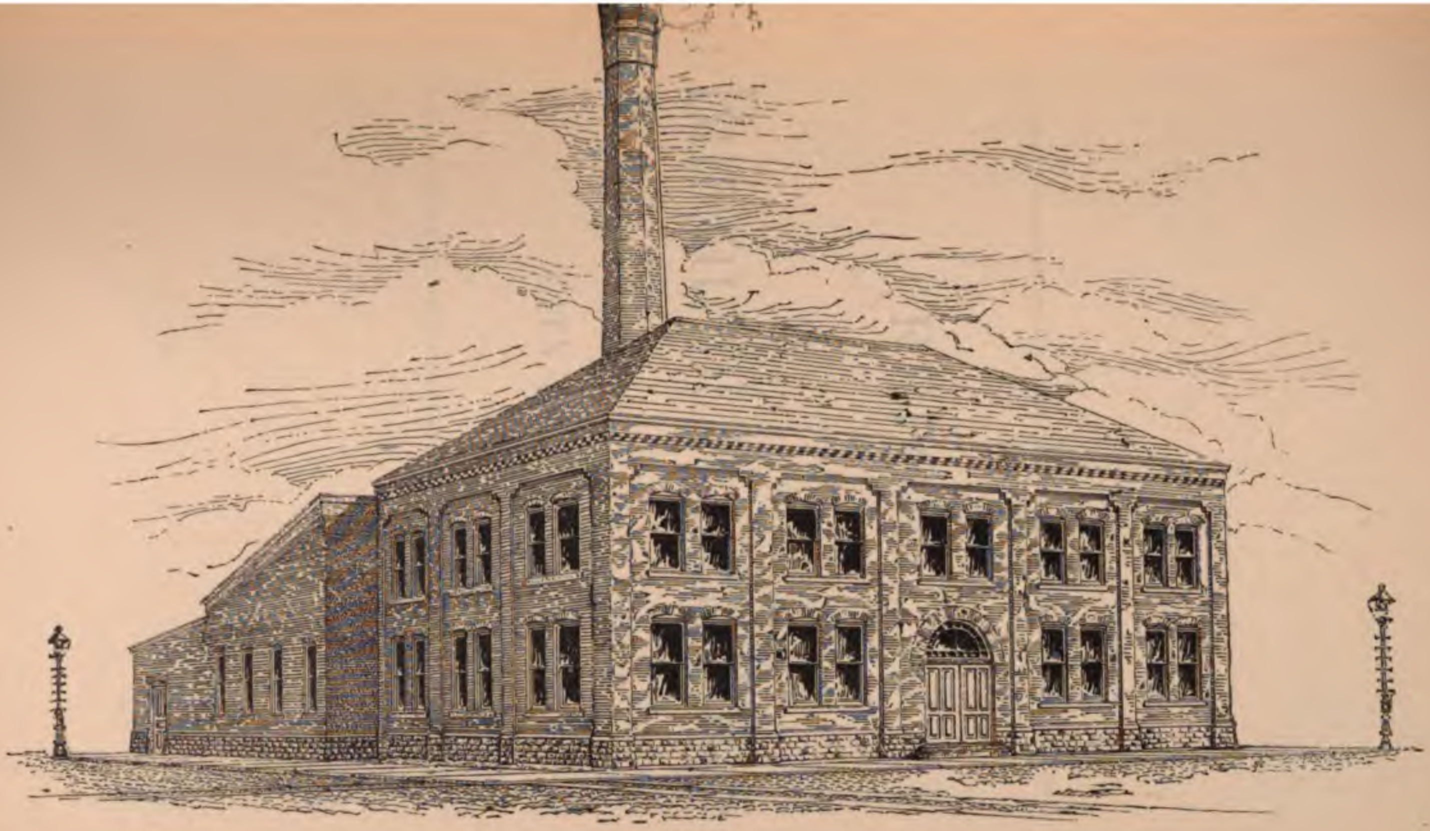
New Boiler House, Engine Room and Coal Shed; completing residence and new Cell House, and part of administration wing. Last named work was partly done by contract, and partly by the institution.

In conclusion, I desire to thank the Commissioner and other officers of the Department for their courtesy and co-operation in all matters relating to the Department; also the Engineers and other employes of this Bureau, for their faithful and efficient services.

Very respectfully,

WM. R. NORTHWAY,

City Engineer.



ELECTRIC LIGHT PLANT,

CHICAGO, ILL. 1889.

REPORT

OF THE

Bureau of Water Rates

CITY OF CHICAGO.

WATER OFFICE REPORT.

CHICAGO, January 1, 1890.

HON. W. H. PURDY,
Commissioner of Public Works.

DEAR SIR:—Herewith I submit the Annual Report of the Water Office for the year ending December 31, 1889:

On the first day of May last I had the honor of assuming the duties and responsibilities of Superintendent of Water, and one week later Mr. Henry T. Murray was assigned as Chief Clerk. It at once became apparent that radical changes should be made, both in the manner of conducting the affairs of the office and in affording facilities to the general public to transact their business with the least inconvenience and loss of time. The books were burdened with back taxes, some of them of several years standing, and many of them unjust and uncollectible. It has been the aim of the Department to clear the books of these accounts, and this has been to a large extent accomplished by compromises and rebates. Where a just claim existed, it has been collected wholly or in part, and where it appeared that there was no legal or justifiable claim, a rebate was made and the account stricken from the books.

A new inspection has been made, and new books are now being prepared which will correctly show the amount of water rate assessed against every building in the city.

These books will be ready for the collection period, commencing May 1, 1890. An additional cashier's and registrar's office has been placed at the south end of the main office, and during the busy season both offices were utilized.

This change has been of very great benefit to the public, and has enabled the rate-payers to transact their business with the smallest possible delay. The long procession of people which formerly filled the corridor of the City Hall has been entirely done away with, and citizens have been waited upon as promptly as they could have been at any large business house in the city.

To further accommodate the public, the system of sending out bills has been adopted. The semi-annual bills will be sent to and left at every house in the city, so that the occupant can know just the amount of his indebtedness and the time within which it must be paid to insure the discount. These bills will be delivered by the shut-off and leak and waste forces, and will cause no additional expense to the office.

This system was inaugurated before the last collection period, and proved itself to be a benefit both to the public and to the office. To the former, by enabling them to send remittances by mail, and thus avoid delay at the office, and to the latter, by reducing the pressure on clerks of paying divisions and by giving additional time in which to enter the payments and mail receipts. The Meter Collection Department has been thoroughly reorganized, and placed under the charge of Mr. A. L. Brown, with an efficient corps of assistants. This change has produced good results, as shown by the increase in the amount of collections and the decrease in the expense of the Department.

The collections for the year have largely exceeded those of former years. This has resulted partly from the natural growth of the city, and partly from collections of back taxes. The annexation of the city of Lake View, the village of Hyde Park, town of Lake, Jefferson, and a part of Cicero have added immensely to the care, responsibility and labor of the Water Office.

Owing to the pending suit in the Supreme Court to test the validity of annexation, no change could be made in the water rates, or system of collection, in the annexed territory, so that we have had different systems of assessing rates and of enforcing collections, and different rates of discount for prompt payment in the old city and in each of the annexed districts. The rate of discount alone has varied from ten per cent. in Lake View to twelve and one-half per cent. in the old city, twenty per cent. in Hyde Park and twenty-five per cent. in Lake. A new assessment is being made in the annexed territories, and on May first next all portions of the city will be assessed under one ordinance, and the rate of discount will be the same in all the wards.

The entire business of the late city of Lake View, the town of Jefferson and the annexed portion of Cicero is now handled at the Water Office in the City Hall. Sub-collection offices are maintained at the old town hall in Hyde Park and the corner of Halsted and Forty-second streets in Lake. The former is under the supervision of Mr. W. S. Maher, and the latter under Mr. Maurice Moriarty. 'In addition to these, sub-collection offices were established at Englewood for the entire month of November, and at South Chicago and Kensington for certain days in each week of the same month. These offices cost but a mere trifle for their maintenance, and proved to be a great convenience to the public. I recommend that these sub-offices be re-established in future collection periods, and in addition thereto that sub-offices be opened and maintained during the discount periods at convenient points both in the northwestern and southwestern portions of the old city. It is the duty of the city to provide for the payment of water rates, in the most convenient and economical manner to the people. The establishment of branch collection offices, in localities which can be reached by the laboring man or woman, without loss of time and without the payment of car fare, will be of more practical benefit to that class of our citizens than any reduction of water rates which it is now expedient to make.

On assuming the duties of Superintendent, I found that a custom had grown up of allowing the discount of twelve and one-half per cent. after the time fixed by ordinance had expired, and without any justifiable cause—"a custom more honored in the breach than in the observance." The discount is allowed as an incentive to prompt payment, and it is unfair to the city, as well as to the prompt-paying water consumer, that privileged classes should be allowed discounts, for political or equally unjustifiable reasons, when the great masses of the laboring people have come miles in distance, and have stood for hours in line, in order that they might save the discount, which their more fortunate neighbors are allowed for the mere asking. I have refused all discounts after the time fixed by ordinance has passed, except in cases of actual charity or where other equally good reasons existed.

Owing to the large expense which the Department will be called upon to bear, for the completion of the new water works and lake tunnel and the extension of pipes in the newly annexed territory, I cannot believe it expedient to make any great reduction in water rates. I do recommend, however, that the rate of discount be increased to twenty per cent. In this manner a liberal reduction will be assured to the poorer classes, who are always the prompt payers, and at the same time additional inducements will be offered for more prompt payments by all classes.

Statement showing the amount of water revenue returned for collection from all sources, the amount collected and rebated, and amount outstanding December 31, 1889:

Dr.

Delinquent rates, January 1, 1889	$ 136,963 24
Assessment, May 1, 1889	1,241,554 55
Assessor's increase, checks	91,327 53
Assessor's miscellaneous	15,565 30
Meter rates	535,989 43
Water permits and plumbers' licenses	16,552 40
Annexed districts, Lake View	41,023 21
Annexed districts, Hyde Park	57,770 56
Annexed districts, Lake	76,046 98
Annexed districts, Jefferson	14 15
Annexed districts, Cicero	36 97
	$2,212,844 32

Cr.

Amount collected, January 1, 1889, to December 31, 1889	$1,813,194 61
Assessor's decrease checks for municipal buildings and public schools	20,647 63
Religious, educational and charitable institutions	13,941 04
Removals, changes to meter control and other causes	86,340 75
Order City Council, March 25, 1889	11 00
Order City Council, September 23, 1889	31 50
Discounts	117,747 66
Balance uncollected, December 31, 1889	160,930 13
	$2,212,844 32

The following is a statement of water collections from January 1, 1889, to December 31, 1889. From this statement is omitted the item of "Drains" heretofore included in the receipts of the Water office but which properly belongs to the Sewer Department.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
January	$ 38,821 27	$44,467 09	$ 70 09	$ 438 00	$83,296 45
February	26,294 34	40,950 83	56 00	319 80	67,620 97
March.	20,840 79	39,395 34	126 71	1,646 60	62,009 44
April	8,377 73	38,133 09	294 01	1,754 50	48,559 33
May.	281,605 76	51,401 49	2,045 53	1,630 10	336,682 88
June........	155,372 27	43,143 03	1,856 25	1,223 90	201,596 45
July..............	70,707 23	47,016 16	1,895 09	1,519 90	121,138 38
August...........	40,928 34	44,095 94	2,337 74	2,022 30	89,384 32
September........	16,822 17	47,054 58	2,994 23	1,991 90	68,362 88
October...........	32,857 97	49,524 21	1,304 99	2,040 30	85,727 47
November........	242,715 87	42,977 23	187 69	1,079 60	286,960 39
December........	138,033 41	47,830 44	215 43	885 50	186,964 78
TOTALS.......	$1,072,377 15	$535,989 43	$13,383 76	$16,552 40	$1,638,302 74

TOWN OF LAKE.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
July..............	$ 1,220 67	$ 2,956 25	$ 27 50	$ 290 30	$ 4,494 72
August...........	2,460 97	6,153 76	528 88	811 90	9,955 51
September........	1,209 69	3,005 17	40 00	691 50	4,946 36
October	4,421 10	2,855 82	30 00	716 30	8,023 22
November	32,752 19	6,830 31	28 00	412 60	40,023 10
December..	3,992 24	4,239 03	20 00	352 80	8,604 07
TOTALS.......	$46,056 86	$26,040 34	$674 38	$3,275 40	$76,046 98

HYDE PARK.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
July..............	$ 1,246 18	$ 3,306 69	....	$ 92 00	$ 4,644 87
August	1,526 22	8,707 52	....	474 90	10,708 64
September........	984 84	3,265 02	....	447 50	4,697 36
October	1,329 36	3,732 00	....	422 60	5,483 96
November........	18,304 82	3,149 27	....	399 00	21,853 09
December	5,799 29	4,358 85	....	224 50	10,382 64
TOTALS.......	$29,190 71	$26,519 35	....	$2,060 50	$57,770 56

LAKE VIEW.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
July	$ 1,500 20	$ 3 60	$ 150 90	$ 280 50	$ 1,935 20
August	4,896 13	881 41	8 00	535 00	6,320 54
September........	2,770 65	566 98	150 00	446 90	3,934 53
October	4,115 77	374 25	45 00	226 80	4,761 82
November........	16,709 30	1,111 70	....	150 00	17,971 00
December	5,395 27	498 85	15 00	191 00	6,100 12
TOTALS.......	$35,387 32	$3,436 79	$368 90	$1,830 20	$41,023 21

CICERO.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
July..............	....	....	....	....	....
August..	$ 6 62	....	....	$ 9 00	$ 15 62
September........	4 97	....	....	....	4 97
October	8 68	....	....	....	8 68
November........	2 00	....	....	....	2 00
December	2 70	....	....	3 00	5 70
TOTALS.......	$ 24 97	....	....	$ 12 00	$ 36 97

JEFFERSON.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
July					
August				$ 9 00	$ 9 00
September				1 00	1 00
October				4 15	4 15
November					
December					
TOTALS				$14 15	$ 14 15

RECAPITULATION.

1889.	By Assessments.	Meters.	Assessor's Miscellaneous.	Water Permits.	TOTAL.
Chicago	$1,072,377 15	$535,989 43	$ 13,383 76	$ 16,552 40	$1,638,302 74
Town of Lake	46,056 86	26,040 34	674 38	3,275 40	76,046 98
Hyde Park	29,190 71	26,519 35		2,060 50	57,770 56
Lake View	35,387 32	3,436 79	368 90	1,830 20	41,023 21
Cicero	24 97			12 00	36 97
Jefferson				14 15	14 15
TOTALS	$1,183,037 01	$591,985 91	$14,427 04	$23,744 65	$1,813,194 61

Important branches of the collection office are the shut-off and leak and waste forces, both of which are under the supervision of Mr. Frank E. Kennedy. The following tables will show the work of those forces for the year:

MONTHS.	Bills Delivered.	Shut-off Notices Delivered.	Shut-off for Unpaid Tax.	Notices of Leak and Wastes.	Shut-off for Leak and Wastes.	Complaints Investigated.	Troughs Reported.	Hose Reported.
January	9,483	2,045	2	63	18	65	......	......
February	......	3,850	11	58	16	60	......	......
March	.....	3,430	96	70	21	74	......	......
April	......	......	70	132	18	172	......	......
May	......	......	3	121	50	125	......	......
June	7,984	......	2	104	42	108	593	......
July	10,344	5,239	2	89	38	93	89	1,940
August	385	6,243	175	120	45	122	......	1,785
September	......	......	215	104	38	105	......	883
October	11,276	......	251	82	41	85	......	......
November	5,089	......	21	94	25	101	......	......
December	5,748	......	10	88	32	89	......	......
Total	50,309	20,807	858	1,125	384	1,199	682	4,608

LAKE DISTRICT.

MONTHS.	Bills Delivered.	Shut-off Notices Delivered.	Shut-off for Unpaid Tax.	Notices of Leak and Wastes.	Shut-off for Leak and Wastes.	Complaints Investigated.	Troughs Reported.	Hose Reported.
July 1 to August 1	323	11	7	27	5	84	......	82
August..........	931	142	19	38	2	104	124	97
September.......	123	116	102	23	8	93	......	89
October..........	226	5	98	19	6	74	......	81
November........	1,526	......	13	13	3	98	......	......
December........	397	......	2	12	7	63	......	......
Total...... ..	3,526	274	241	132	31	516	124	349

HYDE PARK DISTRICT.

MONTHS.	Bills Delivered.	Shut-off Notices Delivered.	Shut-off for Unpaid Tax.	Turned on.	Notices of Leak and Wastes.	Shut-off for Leak and Wastes.	Complaints Investigated.	Troughs Reported.	Hose Reported.
July......	......	50	15	5	......	......	......	......	......
August....	......	400	19	30	......	......	......	......	......
September	......	300	21	35	......	......	......	......	......
October...	300	100	11	20	......	......	......	......	......
November.	300	......	9	18	......	......	......	......	......
December.	......	......	11	7	......	......	......	......	......
Total..	600	850	86	115	......	......	......	......	......

RECAPITULATION.

	Bills Delivered.	Shut-off Notices Delivered.	Shut-off for Unpaid Tax.	Turned on.	Notices of Leak and Wastes.	Shut-off for Leak and Wastes.	Complaints Investigated.	Troughs Reported.	Hose Reported.
City......	50,309	20,807	858	......	1,125	384	1,199	682	4,608
Lake......	3,526	274	241	......	132	31	516	124	349
Hyde Park	600	850	86	115	......	......	......	......	......
Total..	54,435	21,931	1,185	115	1,257	415	1,715	806	4,957

Since May 1 the Inspector's force has been under the charge of Mr. H. O. Hansen, and besides covering the old city for the annual inspection, it has made a complete inspection of the annexed territories of Lake View, Hyde Park, Jefferson and Cicero.

Following is a tabulated statement of the work of that Department for the year 1889:

BUILDINGS EXAMINED.

1889.	One-Story.	Two-Story.	Three-Story.	Four-Story.	Five-Story.	Six-Story.	Seven-Story.	Eight-Story.	Special Examination made.	Number feet Pipe.
January. ...	1,064	2,106	941	375	156	....	....	....	1,068	21,228
February....	920	1,465	895	84	....	....	....	....	555	8,250
March......	805	1,527	425	59	....	....	....	....	374	2,946
April........	756	1,281	185	23	....	....	....	....	71	26,128
May........	1,010	2,064	950	357	159	24	8	....	506	32,187
June........	997	2,071	956	343	79	17	5	1	426	....
July........	1,172	2,876	2,081	486	67	6	....	....	325	727
August	1,348	2,996	1,758	174	8	3	....	....	613	22,912
September..	2,946	3,430	518	44	....	....	....	....	268	14,472
October.....	1,609	2,336	619	229	....	....	....	....	166	58,816
November...	1,727	3,067	806	74	9	....	....	...	383	19,624
December..	2,517	2,622	513	58	....	...	....	....	331	25,949
TOTAL....	16,871	27,841	10,647	2,306	478	50	13	1	5,086	233,239

LAKE DISTRICT.

1889.	One-Story.	Two-Story.	Three-Story.	Four-Story.	Five-Story.	Six-Story.	Seven-Story.	Eight-Story.	Special Examination made.	Number feet Pipe.
July 16 to August 1	890	1,306	40	2	....	..	....	....	62	1,162
August.....	902	1,483	47	1	....	....	....	....	136	2,549
September..	903	1,301	38	2	....	....	....	....	28	....
October	898	1,193	45	......	....	....	....	....	5	....
November...	897	1,102	39	1	....	....	....	....	......	....
December...	813	914	24	......	....	....	....	....	......	....
TOTAL....	5,303	7,299	233	6	....	..	....	....	231	3,711

HYDE PARK DISTRICT.

1889.	One-Story.	Two-Story.	Three-Story.	Four-Story.	Five-Story.	Six-Story.	Seven-Story.	Eight-Story.	Special Examination made.	Number feet Pipe.
July 18 to December 31	239	584	107	6	....	2	....	....	40	....

RECAPITULATION.

1889.	One-Story.	Two-Story.	Three-Story.	Four-Story.	Five-Story.	Six-Story.	Seven-Story.	Eight-Story.	Special Examination made.	Number feet Pipe.
City........	16,115	26,560	10,462	2,283	478	50	13	1	5,086	233,239
Lake.......	5,303	7,299	233	6	....	....	....	....	231	3,711
Hyde Park..	239	584	107	6	....	2	....	....	40	....
	21,657	34,443	10,802	2,295	478	52	13	1	5,357	236,950

In submitting the reports of Mr. Thomas Pattison, Assessor, and Mr. Henry G. Naper, Permit Clerk, I desire to respectfully direct your attention to their remarks and recommendations on the subject of maps and plats for the annexed territory, as well as the renewing and restoring of those which have been so constantly used during the past thirty years. These gentlemen are both veterans in the service; are experts in their respective departments, and their recommendations are worthy of serious consideration.

The restoration of old plats and the making of new ones for the annexed territory, will require a large expenditure of time and money, but the investment will be a paying one and should be entered upon at once.

The room allotted to the Assessor and Permit Clerk is wholly unfitted for the business transacted. There is neither a sufficiency of space nor light. Some arrangement must be made by which the business facilities of these departments can be largely increased. The demands of the various sub-departments of the Bureau of Water Collections for more room and more light are becoming more urgent as the number of water-takers is increased. The entire north half of the first floor of the City Hall should be devoted to these various departments; or, if this is impracticable, other quarters should be procured.

The question of an adequate water supply for the new districts is one of the most important which has been forced upon the consideration of the city authorities by the recent annexation.

From the north-easterly sections of the late town of Lake come daily urgent appeals for water. During the summer months whole days have been passed without a drop of water for domestic use, and many manufacturers have been compelled to shut down for want of a sufficient water supply. The people in this district are assessed the same water rates as are those in more favored localities, and are expected to pay them with equal promptness.

Taxation without water is no more equitable than is taxation without representation, and some plan should be speedily devised to remedy this great wrong. Whether this can be best accomplished by enlarging the pumping facilities of that district or by connecting with the old city system, is a question for the engineers to decide, and is one which I hope they will speedily consider.

Every effort has been made to prevent excessive waste of water, with the hope that the evil might be thereby remedied, but the case is clearly one of defective circulation and requires radical and heroic treatment.

Since the date of annexation about 2,000 houses have been built in this district, and factories and manufacturing establishments have increased in about the same ratio. The consumption of water is reaching enormous proportions, and every effort should be made not only to provide for the present, but to anticipate the future wants of the district.

During the summer months complaints of a scarcity of water were made from the northern portion of Hyde Park, but investigation showed that the shortage in that locality was caused by excessive waste.

Owners of gardens and lawns used the hose constantly, and the pressure was so greatly reduced by their lavish use of water that but very little could be obtained for domestic use.

So persistent were the people in the use of hose, both day and night, and so reckless was the waste of water, that it became necessary to appeal to the Police Department for assistance in suppressing it. Since the close of the summer season, there have been no complaints from that district.

The water system of Pullman is very unsatisfactory to this Department. Some means should be devised by which the supply of that portion of the city can be furnished and paid for under the same rules and regulations which govern other portions. The ordinance which provides for the manner of assessing and collecting water rates should apply equally to every ward and district of the city. If it should be deemed necessary to buy the pipes laid by the Pullman Company, together with the right of way over their lands, I am convinced that it would be far better to do so than to continue the present system. South Chicago, Colehour and Hegewisch all need additional water facilities, and the water fund will be taxed to its utmost limit to meet the proper demands of these rapidly growing districts. Lake View also demands attention. The supply, so far, has been fairly good; but this district is rapidly growing in population and importance, and it will require a large expenditure of money to keep the supply of water equal to the demand. Jefferson and Cicero will soon enter the field as large consumers, and they, too, demand immediate consideration.

An abundant supply of water, for domestic use and fire protection, was a great incentive to annexation; and the promises made to the people of the suburbs, as an inducement for them to become a part of this great city should be fairly and honestly carried out to the fullest extent consistent with the means at our disposal.

Thanking you for the uniform courtesy extended to me during the time I have been connected with your Department, and fully appreciating and acknowledging the kindness and fidelity of all employes of the Water office, I have the honor to be

Very respectfully,

H. E. HAMILTON,

Superintendent of Water.

WATER ASSESSOR'S REPORT.

CHICAGO, January 1, 1890.

MR. H. E. HAMILTON,
Superintendent.

DEAR SIR:—I have the honor to submit to you my annual report of work done in my sub-department for the year ending December 31, 1889. It sets forth—

1. The amount of assessments for water rates on the collection books on January 1. 1889, with increases and decreases up to and including April 30, 1889, being the close of the water revenue year.
2. The amount as assessed and on books on May 1, 1889, for the year ending April 30, 1890, with the increases and decreases from May 1 to December 31, 1889, being the close of the municipal fiscal year.
3. The amount of miscellaneous assessments made during the aforesaid periods, with the amounts decreased and remaining uncollected, the balance being the amounts collected on miscellaneous assessments.
4. A detailed statement of streets and number of water service pipes put in during the year by contract, with the aggregate cost of each street.
5. A list of streets ordered for improvements within the present city limits, with estimated number and cost of water service pipes as returned to the Special Assessment Department during the year ending December 31, 1889.

Amount of water assessments on division books, January, 1889		$1,183,909.95

Amount of increase from January 1, 1889, to April 30, 1889, as per Assessor's checks, numbers 2,600 to 3,052.		Amount of decrease from January 1, 1889, to April 30, 1889, as per Assessor's checks, numbers 1,955 to 2,181.	
January, 1889	$ 4,660 44	January, 1889	$ 4,227 80
February, 1889	1,224 39	February, 1889	2,812 14
March, 1889	2,865 36	March, 1889	2,474 88
April, 1889	1,915 41	April, 1889	1,429 86
Total	$10,665 60	Total	$10,944 68

Decrease	$10,944 68	
Increase	10,665 60	
Total decrease		279 08
Total amount April 30, 1889		$1,183,630 87

MISCELLANEOUS ASSESSMENTS.

January 1, 1889, to April 30, 1889.

Uncollected balance on book January 1, 1889		$ 411 62
INCREASE.		
January, 1889	$ 135 09	
February, 1889		
March, 1889	533 71	
April, 1889	592 08	
Total increase, January 1 to April 30, 1889		$1,260 88
Total		$1,672 50
DECREASE.		
January, 1889	$ 6 75	
February, 1889		
March, 1889		
April, 1889	39 07	
Total decrease, January 1 to April 30, 1889		$ 45 82
Total collected, January 1 to April 30, 1889		546 81
On book, uncollected, April 30, 1889		1,079 87
Total		$1,672 50

Amount of assessment for water, from May 1, 1889, to April 30, 1890, exclusive of meters	$1,280,217 24

Increase from May 1, 1869, to December 31, 1889, as per Assessor's checks, numbers 3,098 to 4,426.		Decrease from May 1, 1889, to December 31, 1889, as per Assessor's checks, numbers 2,183 to 3,459.	
May, 1889	$22,581 50	May, 1889	$ 21,615 35
June, 1889	8,564 62	June, 1889	10,781 14
July, 1889	10,609 12	July, 1889	9,978 73
August, 1889	16,524 02	August, 1889	8,963 21
September, 1889	9,252 20	September, 1889	5,064 72
October, 1889	6,267 27	October, 1889	37,429 86
November, 1889	3,261 92	November, 1889	8,222 48
December, 1889	3,601 28	December, 1889	7,976 75
Total	$80,661 93	Total	$110,027 24

Decrease	$110,027 24	
Increase	80,661 93	
Total decrease		29,365 31
Total assessment from May 1, 1889, to December 31, 1889		$1,250,851 93

MISCELLANEOUS ASSESSMENTS.

May 1, 1889, to December 31, 1889.

Uncollected balance on book, May 1, 1889		$ 1,079 87
INCREASE.		
May, 1889	$ 1,750 83	
June, 1889	1,849 00	
July, 1889	2,456 52	
August, 1889	2,901 73	
September, 1889	2,506 73	
October, 1889	1,140 50	
November, 1889	93 49	
December, 1889	114 13	
Total increase, May 1 to December 31, 1889		12,812 93
Total		$13,892 80

DECREASE.

May, 1889		
June, 1889		
July, 1889	$ 25 00	
August, 1889	116 67	
September, 1889		
October, 1889	80 84	
November, 1889	6 67	
December, 1889		
Total decrease, May 1 to December 31, 1889		$ 229 18
Total collections, May 1 to December 31, 1889		12,836 95
Balance uncollected, December 31, 1889		856 67
Total		$13,922 80

RECAPITULATION OF COLLECTIONS.

January 1 to April 30, 1889	$ 546 81
May 1 to December 31, 1889	12,836 95
Total collections January 1 to December 31, 1889	$13,383 76

Amount rebated by ordinance of November 21, 1884, and July 30, 1885:

Municipal and public schools	$20,647 63
Religious, charitable and educational institutions	13,941 04
By special order of Council, March 25, 1889	11 00
By special order of Council, September 23, 1889	31 50
Total	$34,631 17

The above rebates are included in the general decreases embraced in the foregoing report.

I would also beg leave to report the following number of pipes put in streets in the annexed territory from date of annexation to December 31, 1889, under contracts with the authorities of said territory.

In town of Lake, as reported by Maurice Moriarty: On Garfield boulevard and on Sixty-ninth street, 198 pipes. Amount of contracts, $2,413.77.

In the city of Lake View, as reported by Plumbing Inspectors :

STREET.	FROM	TO	Number of Pipes	Amount of Contract.
Sheffield avenue..	Sulzer....	North Fifty-ninth.	63	$ 716 25
Seminary place...	Seminary avenue..	Racine avenue....	2	19 84
Fullerton avenue..	Halsted..........	Southport avenue.	67	661 71
Dunning........	Halsted..........	C. & E. R. R.....	43	450 86
Wrightwood avenue.....	Orchard..........	Southport avenue.	65	783 80
Wilson..........	Halsted...	Sheffield avenue...	40	461 83
Goodwin..... ...	Aberdeen	North avenue.....	13	147 35
Montana.........	Lincoln avenue...	Racine avenue....	35	441 63
Perry avenue......	Wilson..........	Sulzer............	37	370 66
Winthrop avenue..	Aberdeen.........	Fifty-ninth	12	138 60
Robey	Lawrence avenue..	Sulzer............	25	285 18
North Ravenswood Park..	Sulzer............	Lawrence avenue.	29	308 05
Wolcott..........	Lawrence avenue..	Sulzer............	15	146 05
Clark............	Lawrence avenue..	Church road......	4	61 39
TOTAL......	....	....	450	$4,987 70

WATER SERVICE PIPES PUT IN BY CONTRACT IN THE FOLLOWING NAMED STREETS, DURING THE YEAR ENDING DECEMBER 31, 1889.

STREET.	FROM	TO	Number of Pipes.	Amount of Contract.	Assessor's Costs.
Augusta	Wood	Robey	5	$ 62 80	$ 7 50
Astor	Schiller	Burton place	37	569 12	58 00
Ada	Kinzie	Austin avenue	4	67 60	6 00
Avon place	Robey	Hoyne avenue	18	219 60	27 00
Allport	Nineteenth	Twenty-second	27	418 80	33 00
Ada	Indiana	Erie	7	102 62	10 50
Aldine	Egan	Northern terminus	18	223 92	27 00
Burling	Willow	Centre	9	139 82	13 50
Butterfield	Twenty-sixth	Thirtieth	20	294 56	22 50
Blanche	Fleetwood	Ashland	14	203 60	16 00
Blucher	Wood	Lull place	13	170 30	19 50
Burling	Center	Garfield avenue	3	42 58	4 50
Bissell	Dayton	Garfield avenue	62	886 92	93 00
Burling	Garfield avenue	Webster avenue	5	83 45	8 75
California avenue	North avenue	Milwaukee avenue	149	2,088 90	165 00
Chestnut place	Chestnut	Delaware place	5	56 24	2 50
Carroll avenue	Elizabeth	Ada	8	131 00	12 00
Curtis	Huron	May	19	258 38	21 00
Carroll avenue	Curtis	Ann	9	124 65	13 50
Church place	Aberdeen	Centre avenue	5	47 90	5 00
Congress	Campbell	Rockwell	8	115 60	12 00
Center	Sedgwick	Halsted	4	63 96	6 00
California avenue	Harrison	Twelfth	89	1,328 95	133 50
Cypress	Kendall	Twelfth	16	236 50	24 00
Crystal	Leavitt	Eastern terminus	40	565 50	60 00
Cicero court	Van Buren	Congress	15	186 15	22 50
Clifton Park avenue	Ogden avenue	Twenty-sixth	184	2,614 80	276 00
Colorado avenue	Central Park	Boulevard	....	....	....
Chicago avenue	Pine	600 feet east	15	315 52	16 50

Division	Western avenue	Sacramento avenue	180	3,518 28	262 50
Damen	Sholto	May	16	185 28	24 00
Dean	Brigham	Paulina	6	82 72	6 00
Dudley	North avenue	Armitage avenue	89	1,229 15	183 50
Dudley	Augusta	Division	18	251 55	27 00
Diller	Fulton	Austin avenue	26	381 16	34 00
Deering	Archer avenue	South branch Chicago river	20	326 28	29 00
Elk Grove	Wood	North avenue	6	76 10	9 00
Eugenie	Sedgwick	Larrabee	2	26 88	3 00
Eighteenth	Wood	Western avenue	68	967 52	94 50
Elk Grove	North avenue	Armitage avenue	55	735 25	80 00
Eda	State	Indiana avenue	30	386 22	35 00
Flournoy	Oakley avenue	Western avenue	4	52 40	6 00
Francisco	Lake	Colorado avenue	7	109 06	10 50
Fry	Rose	Ashland avenue	10	108 60	15 00
Francisco	Lake	Kinzie	32	515 64	48 00
Fifth avenue	Thirty-first	Thirty-third	7	99 80	10 50
Flournoy	Rockwell	Washtenaw avenue	26	367 60	39 00
Fairfield avenue	Twelfth	Ogden avenue	55	792 75	82 50
Green	Fulton	Kinzie	......	....	....
Grand boulevard (West Side)	Douglas avenue	800 feet south	18	255 96	12 10
Garfield avenue	Halsted	Racine avenue	5	70 00	5 00
Girard	Milwaukee avenue	Armitage avenue	59	812 65	88 50
Gardner	Vine	Halsted	2	29 00	3 00
Holt	Division	North avenue	15	217 26	20 00
Hoyne avenue	Milwaukee avenue	Armitage avenue	36	484 85	54 00
Holt	Chicago avenue	Augusta	1	14 90	1 50
Harvard	Western avenue	Campbell avenue	10	155 50	15 00
Hobbie	Sedgwick	Larrabee	......	....	....
Hinman	Robey	Western avenue	39	627 93	58 50
Huron	Leavitt	Western avenue	......	....	....
Henry	Ashland avenue	Wood	3	45 86	4 50
Harrison	Rockwell	California avenue	43	599 05	64 50
Ingraham	Noble	Elston avenue	6	98 87	9 00
Irving avenue	Fulton	Kinzie	9	135 90	13 50

RVICE PIPES PUT IN BY CONTRACT IN THE FOLLOWING NAMED STREETS, DURING THE YEAR ENDING DECEMBER 31, 1889—CONTINUED.

STREET.	FROM	TO	Number of Pipes.	Amount of Contract.	Assessor's Costs.
Julian	Ashland avenue	Wood	8	$ 48 11	$ 4 50
Johnson	Wright	Canalport avenue	20	285 25	25 00
Keenon	Ashland avenue	Wood	4	61 01	6 00
Leavitt	Milwaukee avenue	Armitage avenue	16	244 94	24 00
Luce	Blackhawk	Northern terminus	4	57 52	8 50
Milwaukee avenue	Western avenue	California avenue	73	1,222 63	109 50
Milwaukee avenue	California avenue	Fullerton avenue	49	700 63	78 50
Monroe	Rockwell	California avenue	71	1,082 49	106 50
Michigan	Clark	Wells	5	114 55	7 50
Meridian	Desplaines	Halsted	11	148 27	16 50
Menomonee	Sedgwick	Larrabee	4	57 50	6 00
Maplewood avenue	Lake	Railroad ground	8	121 28	12 00
Monroe	California avenue	Sacramento avenue	16	229 14	24 00
Macedonia	Division	Ellen	17	218 83	25 50
Monroe	Albany	Kedzie avenue	45	721 27	67 50
Millard avenue	Ogden avenue	Twenty-sixth	128	1,777 44	177 00
North avenue	California avenue	Kedzie avenue	44	662 20	46 00
Nineteenth	Ashland avenue	Western avenue	36	498 51	51 50
Newberry avenue	Taylor	Twelfth	4	68 76	6 00
Newberry avenue	Wright	Eighteenth	12	203 84	18 00
Nutt	Sixteenth	Eighteenth	4	59 78	1 00
Newton	Augusta	Division	19	260 60	28 00
Ohio	Lincoln	Robey	20	289 56	30 00
Olive	Taylor	Twelfth	21	256 74	31 50
Ogden place	Paulina	Wood	6	90 30	9 00
Orchard	Clybourn avenue	North avenue	1	12 18	1 50
Ohio	Robey	Western avenue	66	985 58	99 00
Paulina	Fifteenth	Twenty-first	8	58 05	1 00
Potomac avenue	Robey	Western avenue	45	645 75	67 50

Perry avenue	Clybourn avenue	Fullerton avenue	6	78 10	9 00
Polk	Campbell avenue	Rockwell	82	479 84	48 00
Robey	Armitage avenue	Fullerton avenue	98	1,466 59	143 50
Robey	Eighteenth	Blue Island avenue	4	51 51	8 50
Sedgwick	Eugenie	Lincoln avenue	12	187 10	18 00
Superior	Robey	Leavitt	41	590 40	61 50
Sloan	Noble	Elston	5	77 53	7 50
Sacramento avenue	Lake	Van Buren	26	363 74	39 00
Sacramento avenue	Lake	Kinzie	18	267 52	27 00
Sheffield	Clybourn avenue	Fullerton avenue	69	965 28	103 50
Selden	Wood	Lincoln	13	174 55	19 50
Shober	Division	North avenue	34	542 48	51 00
Twenty-fifth	Wentworth avenue	Halsted	23	396 56	44 50
Twelfth	California avenue	Kedzie avenue	108	1,989 96	162 00
Twenty-fifth	State	Hanover	38	581 70	57 00
Twenty-fifth	Hanover	Sawyer	45	679 86	64 50
Twenty seventh	State	Portland avenue	26	332 70	21 00
Twenty-fourth place	Wentworth avenue	Hanover	5	72 90	5 00
Twentieth	Ashland avenue	Western avenue	50	714 60	60 00
Thirty-fourth	South Park avenue	Rhodes avenue	6	94 59	7 00
Union	Sixteenth	Twenty-second	4	55 08	6 00
University place	Rhodes avenue	Cottage Grove avenue	5	67 25	7 50
Utica	Fillmore	Twelfth	28	372 44	42 00
Winchester avenue	Ogden avenue	Polk	25	373 65	37 50
Webster avenue	Clybourn avenue	Dominick	11	186 09	16 50
Western avenue	Lake	Indiana	5	85 49	7 50
Wabansia avenue	Elston avenue	Ashland avenue	7	83 51	10 50
Washburn avenue	Robey	Oakley avenue	35	583 30	52 50
Yeaton	Wood	Lincoln	13	204 49	19 50
		TOTAL	3,253	$48,569 18	$4,619 35

NOTE.—The "amount of contract" includes the "Assessor's costs" and the cost of taps and permits.

List of streets ordered for improvement, with estimated number and cost of water service pipes, returned to Superintendent of Special Asessments from January 1 to December 31, 1889:

STREET.	FROM	TO	Number of Pipes	Estimated Cost.
*Aldine..........	Egan avenue......	Northern terminus.	20	$ 435 00
Albany avenue....	Madison	Lake	9	245 00
Ambrose	Wood............	Leavitt	80	1,880 00
Albany avenue....	Madison..........	Lake	22	484 00
Argyle...........	Evanston avenue..	Eastern terminus..	86	1,806 00
Ainslie avenue....	Evanston avenue..	Eastern terminus..	117	2,574 00
Ashland avenue...	Belmont avenue...	Sulzer	486	10,206 00
Asylum place.....	Elston avenue.....	Leavitt	98	2,156 00
Armitage avenue..	Milwaukee avenue.	California avenue..	92	2,024 50
Albany avenue....	Colorado avenue..	Twelfth..........	77	1,694 00
Arch	Lyman...	Thirty-first	6	108 00
Auburn	Thirty-first	Douglas avenue...	89	1,958 00
*Burling	Centre...........	Garfield avenue...	6	141 10
*Bissell	Dayton...........	Belden avenue....	82	2,086 40
*Burling	Garfield avenue...	Webster avenue...	8	194 00
Belmont avenue...	Clark	Lincoln avenue ...	201	4,221 00
Basil avenue......	North avenue.....	Bloomingdale road	36	756 00
Bonfield	Archer avenue....	Thirty-first.......	66	1,254 00
*Clifton Park Avenue...	Ogden avenue.....	Twenty-sixth	209	5,170 40
Colorado avenue..	Central Park avenue	Boulevard........	87	1,080 40
California avenue.	Twelfth..........	Ogden avenue....	47	901 10
California avenue.	Ogden avenue....	Twenty-second...	145	2,538 50
California avenue.	Twenty-second....	Twenty-sixth.....	72	1,640 00
California avenue.	Division..........	North avenue.....	68	1,394 00
*Chicago avenue..	Pine	600 feet east......	16	632 00
Chicago avenue...	Leavitt..........	Kedzie avenue....	375	21,000 00
Chicago avenue...	Kedzie avenue....	Crawford avenue..	308	12,186 50
Chatham.........	Hobbie	Division	12	264 00
Central Park avenue....	Ogden avenue.....	Douglas Park b'd..	194	4,268 00
Cleveland	Wallace..........	Winter...........	13	250 50
Commercial avenue.....	Eighty-seventh ...	Ninety-second....	96	2,400 00
Charleston	Ridge..........	Francis..........	76	1,520 00
Cortland	Western avenue...	Kedzie avenue....	92	2,024 00
Commercial	North avenue.....	Armitage avenue..	71	1,562 00
California avenue.	Chicago avenue...	Division	115	2,530 00
*Deering.........	Archer avenue.....	South branch Chicago river	32	872 80
Dearborn	Sixteenth.	C., B. & Q. R. R..	10	231 00
Dashiel	Thirty-first.......	Egan avenue	199	4,577 00
Davis............	North avenue.....	Wabansia avenue..	19	418 00
Dania avenue.....	North avenue.....	Bloomingdale road.	34	748 00
Dudley	Chicago avenue...	Augusta	36	792 00
Dickson	North avenue.....	Bloomingdale road	31	558 00

STREET.	FROM	TO	Number of Pipes	Estimated Cost.
Davis	Division	North avenue	106	$ 2,332 00
*Eda	State	Indiana avenue	32	749 60
Evans court	Union	Halsted	6	156 60
Exchange avenue	Eighty-seventh	Ninety-second	118	2,596 00
Emerald avenue	Egan avenue	Forty-seventh	302	6,209 12
Early avenue	Evanston avenue	Southport avenue	58	1,160 00
Ellis avenue	Douglas avenue	Egan avenue	18	435 00
Egan avenue	Wentworth avenue	Halsted	198	4,352 00
Edgar	North avenue	Clybourn place	35	780 00
*Fairfield avenue	Twelfth	Ogden avenue	61	1,526 00
Fifteenth	Western avenue	California avenue	114	2,684 00
Fairfield avenue	Twelfth	Harvard	50	1,153 00
Fairfield avenue	Lake	C. & N.-W. Ry	7	179 80
Flournoy	California avenue	Francisco	21	452 50
Forty-fourth	Cottage Grove avenue	St. Lawrence avenue	33	726 00
Florence avenue	Wrightwood avenue	Diversey avenue	66	1,386 00
Fifty-fourth	Lake	Drexel avenue	73	1,606 00
Fifty-fourth place	Woodlawn avenue	Drexel avenue	25	550 00
Fifty-second	Lake	Drexel avenue	47	1,034 00
Fairfield avenue	North avenue	Armitage avenue	52	1,144 00
Forty-second	Cottage Grove avenue	Vincennes avenue	26	572 00
Flournoy	Leavitt	Oakley avenue	10	150 00
*Girard	Milwaukee avenue	Armitage avenue	31	764 95
*Gardner	Vine	Halsted	36	745 20
Grove court	Larrabee	Orchard	16	352 00
Grand avenue	Chicago avenue	Crawford avenue	455	10,920 00
Graceland avenue	Alexander	Lincoln avenue	231	5,544 00
Gross avenue	North avenue	Cortland	61	1,342 00
Grace	North Clark	120 ft. W. of Lake Michigan	92	2,576 00
*Hinman	Robey	Western avenue	43	1,621 40
Huron	Leavitt	Western avenue	21	624 75
Henry	Ashland avenue	Wood	7	178 00
Hoyne aveuue	Chicago avenue	Division	122	2,596 00
Hoyne avenue	Twenty-second	Blue Island avenue	13	321 50
Hope	Blue Island avenue	Morgan	29	543 00
Homan avenue	Lake	Fulton	6	127 00
Humboldt	North avenue	Armitage avenue	102	2,240 00
Heine	North avenue	Armitage avenue	104	2,288 00
Hoyne avenue	Armitage avenue	Asylum place	42	924 00
Hervey	Wood	Robey	30	660 00
*Irving avenue	Fulton	Kinzie	13	296 00
Jefferson	Harrison	Fifteenth	17	452 40
Johnson	Wright	Canalport avenue	38	940 80
Illinois	Franklin	Kingsbury	7	147 00
Jane	Robey	Hoyne avenue	17	347 00
Johnston	California avenue	Humboldt boulevard	102	2,040 40
*Kennon	Ashland avenue	Wood	11	281 60
Kedzie avenue	Van Buren	Twelfth	169	3,718 00
Lexington	Rockwell	California avenue	75	1,182 00
Laflin	Fourteenth	Twenty-second	29	794 00
Lock	Archer avenue	S. branch Chicago river	41	1,012 95
Leavitt	North avenue	Wabansia avenue	20	440 00
Lawndale	Twenty-sixth	Twenty-eighth	184	4,048 00

STREET.	FROM	TO	Number of Pipes	Estimated Cost.
*Macedonia	Division	Ellen	35	$ 864 15
*Millard avenue	Ogden avenue	Twenty-sixth	133	3,302 80
Millard avenue	Twenty-sixth	Twenty-eighth	91	2,002 00
*Monroe	California avenue	Sacramento avenue	33	767 25
*Monroe	Albany avenue	Kedzie avenue	49	1,323 00
Mather	Canal	Halsted	17	320 00
Maplewood avenue	Division	North avenue	112	2,464 00
Mozart	North avenue	Armitage avenue	90	1,980 00
Monroe	Albany avenue	Kedzie avenue	49	1,323 00
Norwood avenue	Kedzie avenue	Homan avenue	82	1,804 00
*Nineteenth	Ashland avenue	Western avenue	135	3,176 40
*Newberry avenue	Taylor	Twelfth	8	206 00
*Newberry avenue	Wright	Eighteenth	43	1,130 75
*Nutt	Sixteenth	Eighteenth	6	148 80
*Newton avenue	Augusta	Division	36	838 90
Napoleon place	Wentworth avenue	Stewart avenue	10	225 00
Napoleon place	Stewart avenue	Wallace	20	440 00
North avenue	Kedzie avenue	Tinkham	203	5,684 00
*Ohio	Robey	Western avenue	80	1,984 00
Osborne	Indiana	Ohio	6	108 00
Oakley avenue	North avenue	Wabansia avenue	16	352 00
Oakley avenue	Division	North avenue	68	1,496 00
Paulina	Archer avenue	Thirty-eighth	107	2,354 00
Potomac avenue	Western avenue	California avenue	64	1,408 00
*Polk	Campbell avenue	Rockwell	33	875 60
Paulina	Twenty-first	Blue Island avenue	4	89 60
Powell avenue	Milwaukee avenue	Fullerton avenue	95	2,090 00
Quarry	C. & A. R. R.	Twenty-seventh	36	863 00
*Robey	Eighteenth	Blue Island avenue	11	268 40
Rockwell	Twelfth	Twenty-second	147	3,234 00
Root	State	Halsted	217	4,678 52
Rice	Robey	Leavitt	33	693 00
Richmond	Chicago avenue	Division	128	2,816 00
Rockwell	North avenue	Armitage avenue	58	1,276 00
Rockwell	Division	North avenue	104	2,288 00
*Selden	Wood	Lincoln	18	407 90
Sixteenth	Canal	Halsted	19	544 35
*Shober	Division	North avenue	58	1,447 20
Seventeenth	Ashland avenue	Lincoln	7	160 40
Sixteenth	Ashland avenue	Wood	53	1,195 60
St. Louis avenue	Lake	Chicago avenue	145	3,283 00
Shields avenue	Thirty-first	Thirty-third	79	1,789 50
Shields avenue	Twenty-sixth	Thirty-first	28	631 20
Seward	Canalport avenue	Lumber	17	407 00
Sawyer avenue	Ogden avenue	C., B. & Q. R. R.	51	1,183 50
Spring	State	Wentworth avenue	42	882 00
Sixteenth	Western avenue	California avenue	125	2,824 50
Sixteenth	Halsted	Throop	22	528 00
Town	Blackhawk	North avenue	7	131 25
Twenty-second	Western avenue	C., B. & Q. R. R.	400	9,346 00
Twelfth	Kedzie avenue	Douglas Park Boulevard	253	7,649 00
Thirty-second	Laurel	Ullman	9	240 30
Thirtieth	Wentworth avenue	Stewart avenue	12	267 60

STREET.	FROM	TO	Number of Pipes	Estimated Cost.
Twenty-third place	Wentworth avenue	Archer avenue	61	$ 1,264 00
Twenty-eighth	Stewart avenue	Wallace	23	521 50
*Thirty-fourth	South Park avenue	Rhodes avenue	8	181 60
Twenty-seventh	Hanover	Wallace	16	380 80
Thirty-fourth	Halsted	Laurel	11	243 50
Twenty-sixth	Western avenue	Lawndale avenue	371	9,207 00
Twenty-first	Union	Halsted	5	125 00
Thirty-sixth	State	Indiana avenue	11	209 00
Thirty-eighth	Wabash avenue	Wentworth avenue.	10	200 00
Thomas	Seymour	California avenue	91	2,093 00
*University place.	Rhodes avenue	Cottage Grove avenue	5	162 50
*Utica	Fillmore	Twelfth	32	793 60
Vine	Vedder	Rees	11	181 50
Vine	Division	Vedder	10	215 00
Vernon avenue	Thirty-seventh	Egan avenue	70	1,543 00
Van Horn	Robey	Western avenue	37	814 00
Vincennes avenue.	Forty-seventh	Fifty-first	104	2,288 00
*Wabansia avenue	Elston avenue	Ashland avenue	14	285 60
*Washburn avenue	Robey	Oakley avenue	44	1,006 00
Wood	Sixteenth	Blue Island avenue	9	239 50
Wabansia avenue.	Coventry	Ashland avenue	14	256 20
Western avenue	Indiana	Chicago avenue	75	3,711 00
Western avenue	Chicago avenue	North avenue	273	8,532 00
Wellington avenue	Sheffield avenue	Halsted	72	1,440 00
Washtenaw avenue	North avenue	Armitage avenue	71	1,562 00
Washtenaw avenue	Division	North avenue	60	1,320 00
Whipple	Colorado avenue	Van Buren	26	572 00
Wood	Archer avenue	Egan avenue.	129	2,838 00
*Yeaton	Wood	Lincoln	17	466 15
TOTAL			12,891	$313,003 89

NOTE.—Streets marked thus * were let and pipes put in, as reported in list of contracts for 1889.

It may be observed that, although the number of contracts for water service pipes is about the same this year as last, there is a large falling off in the aggregate amount of cost. This is accounted for by the fact that the number of pipes put in last year was 5,387, while only 3,253 were put in this year, showing a difference of 2,134 less than last year, and yet there was but little difference in the amount of labor performed in looking after and making reports on these small contracts.

It will also be seen that the amount of estimates for water service pipes is largely increased over last year, or any previous year. This is caused mostly by the great amount of territory recently annexed to the city, and by the increased amount of street improvements ordered by the City Council inside the old city limits.

Since my last report I have had twelve new plat books procured for this office, and our draughtsmen are now engaged in replatting some of our most dilapidated books, and in drawing anew the most needed parts of the annexed territory, at all times when the routine work of the office will permit, and especially during over-time, as without a complete set of plats it is impossible to execute the necessary work of this Department; they are so constantly in use by employes in all the offices that it requires the greatest care to keep them from being so defaced as to render them useless.

The other routine work of annual examinations and corrections of assessments has been carried on as usual, and I think with as much accuracy and dispatch as the experience of our present force will permit. I have to regret the sad loss of my chief assistant, Mr. C. J. Vogelf, in whom I had full confidence as to his fidelity and ability to carry on his part of the work in this office.

In closing this report, permit me to acknowledge my obligations for the uniform courtesy extended to me by my superior officers and all others, in the discharge of the duties of my sub-department.

Respectfully submitted,

THOMAS PATTISON,

Assessor Water Department.

WATER SERVICE PIPES PUT IN BY CONTRACT IN THE FOLLOWING NAMED STREETS, DURING THE YEAR ENDING DECEMBER 31, 1889—CONTINUED.

STREET.	FROM	TO	Number of Pipes.	Amount of Contract.	Assessor's Costs.
Julian	Ashland avenue	Wood	8	$ 48 11	$ 4 50
Johnson	Wright	Canalport avenue	20	285 25	25 00
Keenon	Ashland avenue	Wood	4	61 01	6 00
Leavitt	Milwaukee avenue	Armitage avenue	16	244 94	24 00
Luce	Blackhawk	Northern terminus	4	57 52	8 50
Milwaukee avenue	Western avenue	California avenue	73	1,222 63	109 50
Milwaukee avenue	California avenue	Fullerton avenue	49	700 63	78 50
Monroe	Rockwell	California avenue	71	1,032 49	106 50
Michigan	Clark	Wells	5	114 55	7 50
Meridian	Desplaines	Halsted	11	143 27	16 50
Menomonee	Sedgwick	Larrabee	4	57 50	6 00
Maplewood avenue	Lake	Railroad ground	8	121 28	12 00
Monroe	California avenue	Sacramento avenue	16	229 14	24 00
Macedonia	Division	Ellen	17	218 83	25 50
Monroe	Albany	Kedzie avenue	45	721 27	67 50
Millard avenue	Ogden avenue	Twenty-sixth	128	1,777 44	177 00
North avenue	California avenue	Kedzie avenue	44	662 20	46 00
Nineteenth	Ashland avenue	Western avenue	36	498 51	51 50
Newberry avenue	Taylor	Twelfth	4	68 76	6 00
Newberry avenue	Wright	Eighteenth	12	203 84	18 00
Nutt	Sixteenth	Eighteenth	4	59 78	1 00
Newton	Augusta	Division	19	260 60	28 00
Ohio	Lincoln	Robey	20	289 56	30 00
Olive	Taylor	Twelfth	21	256 74	31 50
Ogden place	Paulina	Wood	6	90 30	9 00
Orchard	Clybourn avenue	North avenue	1	12 18	1 50
Ohio	Robey	Western avenue	66	985 58	99 00
Paulina	Fifteenth	Twenty-first	3	58 05	1 00
Potomac avenue	Robey	Western avenue	45	645 75	67 50

Perry avenue	Clybourn avenue	Fullerton avenue	6	78 10	9 00
Polk	Campbell avenue	Rockwell	82	479 84	48 00
Robey	Armitage avenue	Fullerton avenue	98	1,466 59	148 50
Robey	Eighteenth	Blue Island avenue	4	51 51	8 50
Sedgwick	Eugenie	Lincoln avenue	12	187 10	18 00
Superior	Robey	Leavitt	41	590 40	51 50
Sloan	Noble	Elston	5	77 58	7 50
Sacramento avenue	Lake	Van Buren	26	363 74	39 00
Sacramento avenue	Lake	Kinzie	18	267 52	27 00
Sheffield	Clybourn avenue	Fullerton avenue	69	965 28	103 50
Selden	Wood	Lincoln	13	174 55	19 50
Shober	Division	North avenue	34	542 48	51 00
Twenty-fifth	Wentworth avenue	Halsted	23	396 56	44 50
Twelfth	California avenue	Kedzie avenue	108	1,989 96	162 00
Twenty-fifth	State	Hanover	38	581 70	57 00
Twenty-fifth	Hanover	Sawyer	45	679 86	64 50
Twenty seventh	State	Portland avenue	26	332 70	21 00
Twenty-fourth place	Wentworth avenue	Hanover	5	72 90	5 00
Twentieth	Ashland avenue	Western avenue	50	714 60	60 00
Thirty-fourth	South Park avenue	Rhodes avenue	6	94 59	7 00
Union	Sixteenth	Twenty-second	4	55 08	6 00
University place	Rhodes avenue	Cottage Grove avenue	5	67 25	7 50
Utica	Fillmore	Twelfth	28	378 44	42 00
Winchester avenue	Ogden avenue	Polk	25	378 65	37 50
Webster avenue	Clybourn avenue	Dominick	11	186 09	16 50
Western avenue	Lake	Indiana	5	85 49	7 50
Wabansia avenue	Elston avenue	Ashland avenue	7	83 51	10 50
Washburn avenue	Robey	Oakley avenue	35	583 30	52 50
Yeaton	Wood	Lincoln	13	204 49	19 50
		TOTAL	3,253	$48,569 18	$4,619 35

NOTE.—The "amount of contract" includes the "Assessor's costs" and the cost of taps and permits.

SUMMARY OF FERRULES INSERTED IN OLD PART OF THE CITY.

	½ inch.	⅝ inch.	¾ inch.	1 inch.	Grand Total.
Screw ferrules	... .	3,061	1,890	100	5,051
Driven ferrules	3	355	3,388	11	3,757
GRAND TOTAL	3	3,416	5,278	111	8,808

The ferrules inserted as per above tables are classified as follows :

Inserted as re-taps in replaced street mains for Pipe Foremen	502
Inserted for contractors, under contracts let by the Commissioner of Public Works for water service pipes in streets to be improved	3,253
Inserted for sundry applicants at Water office for water supply to buildings	5,053
Grand Total	8,808

Of the ferrules inserted for sundry applicants as given above, 689 were inserted for enlarged service pipes to buildings previously supplied.

By deducting the 502 ferrules put in as re-taps for pipe foremen, and the 689 ferrules put in for enlarged service pipes, from the total as given in the above tables, leaves 7,617 ferrules as the actual increase to the number inserted in previous years. This increase belongs to the old part of the city only.

Permits were issued during the year 1889 by this Department, as follows:

For tapping water mains	7,691
For miscellaneous connections	1,775
For moving houses	1,270
Grand Total	10,736

Number of inspections made by the Plumbing Inspectors	11,791
Number of leak reports received	508
Number of Plumbers' Bonds filed	309
Number of Plumbers' Licenses issued	309

RECEIPTS—EARNINGS.

Amount received for inserting 5,058 ferrules (of all sizes) as per cash book	$ 16,271 40
Amount to be credited to water fund for 3,253 ¾-inch ferrules inserted for street improvement water service pipes and deducted from contractors' bills @ $3 50 each	11,385 50

For 502 "re-taps" inserted in replaced street mains, as follows:

2 ½-inch ferrules @ $2.50	5 00
343 ⅝-inch ferrules @ 3.00	1,029 00
145 ¾-inch ferrules @ 3.50	507 50
12 1-inch ferrules @ 5.40	64 80
For 309 plumbers' licenses @ $1.00	309 00
Total receipts—earnings	$ 29,572 20

EXPENDITURES.

Cost of 3,061 ⅝-inch screw ferrules, inserted @ 39¾c		$ 1,216 75
Cost of 1,890 ¾-inch screw ferrules, inserted @ 54c		1,020 60
Cost of 100 1-inch screw ferrules, inserted @ $1.30		130 00
Cost of 1 ½-inch driven ferrules, inserted @ 45c		45
Cost of 355 ⅝-inch driven ferrules, inserted @ 45c		159 75
Cost of 3,387 ¾-inch driven ferrules, inserted	209 @ 65c	135 85
	3,178 @ 59c	1,875 02
Cost of 11 1-inch driven ferrules, inserted @ $1.30		14 30
Cost of 2 ½-inch driven ferrules, inserted as re-taps @ 45c		90
Cost of 329 ⅝-inch driven ferrules, inserted as retaps @ 54c		177 66
Cost of 140 ¾-inch driven ferrules, inserted as retaps @ 59c		82 60
Cost of 12 1-inch driven ferrules, inserted as retaps @ $1.30		15 60
Cost of 14 ⅝-inch screw ferrules, inserted as retaps @ 39¾c		5 56
Cost of 5 ¾-inch screw ferrules, inserted as retaps @ 54c		2 70

Salary of Permit Clerk	$ 1,500 00
Salary of Assistant Permit Clerk	1,200 00
Salary of Assistant Permit Clerk	1,050 00
Salary of Assistant Permit Clerk	989 98
Salary of Assistant Permit Clerk	950 82
Salaries paid Plumbing Inspectors	8,670 53
Salaries paid Tappers	5,772 81
Paid for expressage	2,626 80
Cost of Permit Clerk's books, blanks, etc	441 95
Cost of new parts for screw tapping machines	78 42

Cost of drills used up in screw tapping machines, as follows:

41 ⅝-inch @ $4.05	166 05
24 ¾-inch @ $4.95	118 80
3 1-inch @ $5.85	17 55

Cost of drills used up on smooth-bore tapping machines, as follows:

11 ⅝-inch, 24 ¾-inch @ $1.50 each	52 50
Cost of 4 dozen malleable iron sockets for stop-cock boxes @ 75c per dozen	3 00
Cost of miscellaneous material for use of tappers	107 48
Cost of 5,000 fibre washers for ferrules @ ½c	25 00
Cost of car fare for Plumbing Inspectors	408 76
Cost of sundry plumbing repairs on account of defects in brass ferrules	64 86
Maintenance of three horses at water works' stables	1,239 75
Total expenditures	$ 30,322 30

Total expenditures	$ 30,322 30
Total receipts—earnings	29,572 20
Net loss	$ 750 10

INVENTORY OF PROPERTY—WATER PERMIT DEPARTMENT, DECEMBER 31, 1889.

	½ inch Driven Ferrules.	⅝ inch Driven Ferrules.	¾ inch Driven Ferrules.	1 inch Driven Ferrules.
On hand December 31, 1888	50	2,865	209	481
Purchased during 1889	....	....	3,452	....
TOTAL	50	2,865	3,661	481
Used during 1889	3	355	3,388	11
On hand December 31, 1889	47	2,510	273	470
Less ferrules found damaged	5	27	33	1
Perfect ferrules on hand December 31, 1889	42	2,481	240	477

	⅝ inch Screw Ferrules.	¾ inch Screw Ferrules.	1 inch Screw Ferrules.
On hand December 31, 1888	3,201	5,702	167
Purchased during 1889	....	....	....
TOTAL	3,201	5,702	167
Used during 1889	3,061	1,890	100
On hand December 31, 1889	140	3,812	67
Less ferrules found damaged	58	75	11
Perfect ferrules on hand December 31, 1889	47	3,815	51

SUMMARY OF FERRULES ON HAND.

	½ inch Ferrules.	⅝ inch Ferrules.	¾ inch Ferrules.	1 inch Ferrules.	Grand Total.
Driven ferrules on hand December 31, 1889 . .	42	2,481	240	477	3,240
Screw ferrules on hand December 31, 1889 . .	....	47	3,815	51	3,918
GRAND TOTAL..............	42	2,528	4,055	528	7,153

	½ inch Screw Drills.	⅝ inch Screw Drills.	¾ inch Screw Drills.	1 inch Screw Drills.	½ inch Smooth Bore Drills.	⅝ inch Smooth Bore Drills.	¾ inch Smooth Bore Drills.	1 inch Smooth Bore Drills.
On hand December 31, 1888....	1	26	52	19	3	27	19	8
Purchased during 1889.........	....	91	32	12	....	18	54	.....
TOTAL.................	1	117	84	31	3	45	73	8
Used up during 1889...........	.....	41	24	3	.....	11	24	.....
On hand December 31, 1889....	1	76	60	28	3	34	49	8

	Extra Couplings for ⅝ inch Driven Ferrules.	Extra Couplings for ¾ inch Driven Ferrules.	Extra Couplings for ⅝ inch Screw Ferrules.	Extra Couplings for ¾ inch Screw Ferrules.
On hand December 31, 1888......	25	111	228	183
Purchased during 1889....... ...	....	100	... .	....
TOTAL..................	25	211	228	183
Used during 1889................	8	41	9	3
On hand December 31, 1889......	17	170	219	180

	½ inch Plugs.	⅝ inch Plugs.	¾ inch Plugs.	1 inch Plugs.
On hand December 31, 1889—				
Long shank plugs.............	46	89	90	20
Short shank plugs.............	45	20	24	23
Total on hand.............	91	109	114	43

Besides the above, we have on hand six Mueller screw-tapping machines and six machines of the old pattern for driving ferrules.

REPORT FOR LAKE VIEW.

The following tables show the number of screw ferrules inserted and iron shut-off boxes sold from July 15 to December 31, 1889, in what was formerly the city of Lake View, together with the receipts and expenditures for the same:

MONTHS.	⅝ inch Screw Ferrules Inserted.	¾ inch Screw Ferrules Inserted.	1 inch Screw Ferrules Inserted.	Grand Totals Ferrules Inserted.	Iron Shut-off Boxes Sold.
July 15 to 31..........	34	6	....	40	....
August..............	554	27	....	581	481
September............	101	37	1	139	128
October..............	43	9	....	52	56
November............	27	6	....	33	32
December...........	37	7	....	44	41
TOTAL............	796	92	1	889	738

The ferrules inserted in preceding tables are classified as follows:

Inserted as re-taps in replaced street mains	8
Inserted for contractors, under contracts let previous to annexation by the authorities of the city of Lake View for water service pipes in streets to be improved	462
Inserted for sundry applicants at Water office for water supply to buildings	419
Total	889

Permits were issued as follows, viz:

For tapping water mains	805
For miscellaneous connections	95
For moving houses	17
Grand total	917

Number of inspections made by the Plumbing Inspectors	880

RECEIPTS—EARNINGS.

Amount received for inserting ferrules, of all sizes, as per cash book	$ 1,089 20
Amount received from sale of 311 iron shut-off boxes, at the office, as per cash book, @ $1.50 each	466 50
Amount to be credited to Water Fund for 462 ⅝ inch ferrules, inserted for street improvement, water service pipes, and deducted from contractor's bills, @ $3.00 each	1,386 00
Amount to be credited to Water Fund for 427 iron shut-off boxes, delivered to contractors for street improvements, water service pipes, and deducted from their bills, @ $1.50 each	640 50
For 8 ⅝-inch ferrules, inserted as re-taps for Pipe Foreman in replaced street mains, @ $3.00	24 00
Total receipts—earnings	$ 3,606 20

EXPENDITURES.

Cost of	796	⅝-inch screw ferrules @ 55c	$ 437 80
Cost of	92	¾-inch screw ferrules @ 81c	74 52
Cost of	1	1-inch screw ferrule	1 80

Cost of 8 ⅝-inch screw ferrules, inserted at re-taps, (@ 55c	$ 4 40
Cost of 784 iron shut-off boxes @ $1.25	917 50
Paid for cartage	8 00
Salaries paid Plumbing Inspectors, July 17 to December 31st, 1889...	430 82
Salaries paid Tappers, July 17 to December 31, 1889	677 21
Paid for expressage, July 17 to December 31, 1889	356 25

Cost of drills used up in screw tapping machines, as follows:

4 ⅝-inch drills (@ $4.05	16 20
7 ¾-inch drills @ $4.95	34 65
Total expenditures	$2,958 65
Total receipts for Lake View	$3,606 20
Total expenditures for Lake View	2,958 65
Net gain	$ 647 55

Inventory of material received from the authorities of what was formerly the city of Lake View, subsequent to date of annexation, July 15, 1889:

	⅝ inch Screw Ferrules.	¾ inch Screw Ferrules.	1 inch Screw Ferrules.	Iron Shut-off Boxes.
Received from Lake View.......	377	100	1	277
Purchased Aug. 1 to Dec. 31, 1889.	500	....	....	600
TOTAL..........	877	100	1	877
Inserted from July 15 to December 31, 1889...	796	92	1	738
On hand December 31, 1889......	81	8	....	139

	½ inch Screw Drills.	⅝ inch Screw Drills.	¾ inch Screw Drills.	1 inch Screw Drills.
Received from Lake View........	1	2	6	....
Purchased Aug. 1 to Dec. 31, 1889.	....	5	4	....
TOTAL....................	1	7	10	....
Used from Aug. 1 to Dec. 31, 1889.	....	4	7	....
On hand December 31, 1889......	1	3	3	.. ..

Besides the above we received three Mueller screw tapping machines, and a complement of wrenches, oilers, saddles, and other tools belonging to each.

REPORT FOR HYDE PARK.

The following tables will show the number of screw ferrules inserted in what was formerly the village of Hyde Park, together with the receipts and expenditures thereof:

MONTHS.	⅝ inch Screw Ferrules Inserted.	¾ inch Screw Ferrules Inserted.	1 inch Screw Ferrules Inserted.	Grand Total of Screw Ferrules Inserted.
July 15 to 31.......	22	106	....	128
August	95	574	6	675
September..........	111	168	5	284
October	108	147	4	259
November	80	112	10	202
December	164	18	....	182
TOTAL.......................	580	1,125	25	1,730

The ferrules inserted as per preceding table are classified as follows:

Inserted for contractors, under contracts let previous to annexation by the authorities of the village of Hyde Park, and some by the Commissioner of Public Works, for water service pipes in streets to be improved	1,087
Inserted for sundry applicants at Water office for water supply to buildings	643
Total	1,730

Permits were issued as follows, viz:

For tapping water mains	643
For miscellaneous connections	293
For moving houses	32
Grand Total	968

RECEIPTS—EARNINGS.

Amount received for inserting ferrules (of all sizes) as per cash book	$ 2,060 50
Amount to be credited to Water Fund for 979 ¾-inch, and 108 ⅝-inch—total 1,087 ferrules inserted for street improvement water service pipes and deducted from Contractor's bills @ $1.50 each	1,630 50
Total receipts—earnings	$ 3,691 00

EXPENDITURES.

Cost of 580 ⅝-inch screw ferrules @ 65c	$ 377 00
Cost of 1,125 ¾-inch screw ferrules @ 68c	765 00
Cost of 25 1-inch screw ferrules @ $1.30	32 50
Salary paid Permit Clerk from July 17 to December 31, 1889	600 00
Salaries paid Tappers, including use of horses	1,190 62
Total expenditures	$ 2,965 12

Total receipts—earnings	$ 3,691 00
Total expenditures	2,965 12
Net gain	$ 725 88

Inventory of material received December 31, 1889, from what was formerly the village of Hyde Park:

	½ inch Screw Ferrules.	⅝ inch Screw Ferrules.	¾ inch Screw Ferrules.	1 inch Screw Ferrules.
On hand July 15, 1889..........	6	504	792	33
Purchased from August 1 to December 31, 1889..	....	200	1,200	....
TOTAL..................	6	704	1,992	33
Inserted from July 15 to December 31, 1889...	....	580	1,125	25
On hand December 31, 1889......	6	124	867	8

	⅝ inch Screw Drills.	¾ inch Screw Drills.	⅝ inch Plugs.	¾ inch Plugs.
On hand December 31, 1889.....	5	7	3	3

Besides the above we received four Mueller screw tapping machines, and a complement of wrenches, oilers, saddles, etc., belonging to each.

REPORT FOR THE TOWN OF LAKE.

The following is a statement of the number of screw ferrules inserted from July 15 to December 31, 1889, together with the receipts and expenditures, as taken from the general report made by M. Moriarty, Chief Clerk Water Department, town of Lake District.

MONTHS.	⅝ inch Screw Ferrules Inserted.	¾ inch Screw Ferrules Inserted.	1 inch Screw Ferrules Inserted.	Grand Total of Screw Ferrules Inserted.
July 15 to 31	76	60	2	138
August	219	15	6	240
September	185	24	5	214
October	187	16	12	215
November	98	15	4	117
December	83	18	3	104
Water service pipes for street improvement	....	179	79	258
Total	848	327	111	1,286

PERMITS ISSUED.

Tapping water mains	928
Miscellaneous connections	104
Moving houses	37
Grand total	1,069
Plumbers' licenses issued	36
Plumbers' bonds filed	36
Number of leaks reported	47
Number of inspections made by the Plumbing Inspectors	111

RECEIPTS—EARNINGS.

Amount received for inserting ferrules for water service pipes as per cash book from July 15 to December 31, 1889	$ 3,271 90
Amount to be credited to Water Fund for 179 ¾-inch, and 79 1-inch ferrules, inserted for street improvement water service pipes, and deducted from Contractors' bills @ $2.00	516 00
Total receipts—earnings	$ 3,787 90

EXPENDITURES.

Cost of 848 ⅝-inch screw ferrules inserted @ 54c	$ 457 92
Cost of 327 ¾-inch screw ferrules inserted @ 75c	245 25
Cost of 111 1-inch screw ferrules inserted @ $1.15	127 65
Total expenditures	$ 830 82
Total receipts—earnings	$ 3,787 90
Total expenditures	830 82
Net gain	$ 2,957 08

Inventory of property received December 31, 1889, from what was formerly the town of Lake:

	⅝ inch Screw Ferrules.	¾ inch Screw Ferrules.	1 inch Screw Ferrules.
On hand July 15, 1889	676	216	101
Received since annexation	247	318	....
TOTAL	923	584	101
Used since annexation	871	128	38
On hand December 31, 1889	52	390	59

Besides the above we received five Mueller screw tapping machines, with a complement of plugs, saddles, wrenches and oilers belonging to each, also eleven ⅝-inch, eleven ¾-inch, and four 1-inch drills.

RECAPITULATION.

FERRULES INSERTED.

	½ inch Screw Ferrules.	⅝ inch Screw Ferrules.	¾ inch Screw Ferrules.	1 inch Screw Ferrules.	½ inch Driven Ferrules.	⅝ inch Driven Ferrules.	¾ inch Driven Ferrules.	1 inch Driven Ferrules.
Inserted within old limits of city, Cicero and Jefferson	....	3,061	1,890	100	3	355	3,388	11
Inserted within limits of what was formerly the city of Lake View	....	796	92	1	....	....	....	....
Inserted within limits of what was formerly the village of Hyde Park	....	580	1,125	25	..	....	....	....
Inserted within limits of what was formerly the town of Lake	....	848	327	111	....	...	....	....
TOTAL	0	5,285	3,434	237	3	355	3,388	11
Grand total of all sizes inserted for the whole city							12,713	

WATER PERMITS ISSUED.

	For Tapping Water Mains.	For Miscellaneous Connections.	For Moving Houses.	Number of Inspections made by Plumbing Inspectors.	Number of Plumbers' Bonds Filed.	Number of Plumbers' Licenses Issued.
Issued for territory within old limits of city, Cicero and Jefferson	7,691	1,775	1,270	11,791	309	309
Issued for territory within limits of what was formerly the village of Hyde Park	643	293	32	......	......	......
Issued for territory within limits of what was formerly the city of Lake View	805	95	17	880	......	......
Issued for territory within limits of what was formerly the town of Lake	928	104	37	111	36	36
TOTAL	10,067	2,267	1,356	12,782	345	345

RECEIPTS (EARNINGS) AND EXPENDITURES.

	Cash received for work done within old city limits, Cicero and Jefferson.	Cash received for work done within territory formerly the city of Lake View.	Cash received for work done within territory formerly the village of Hyde Park.	Cash received for work done within territory formerly the town of Lake.	Grand Totals.
....	$29,572 20	$3,606 20	$3,691 00	$3,787 90	$40,657 30
Expenditures.......	30,322 30	2,958 65	2,965 12	830 82	37,076 89
Net gain..					$ 3,580 41

RECAPITULATION.

INVENTORY OF FERRULES ON HAND, DECEMBER 31, 1889.

	½ inch Ferrules	⅝ inch Ferrules	¾ inch Ferrules	1 inch Ferrules	Grand Total.
Driven ferrules on hand in bins at City Hall..............................	42	2,481	240	477	3,240
Screw ferrules on hand in bins at City Hall..............................	......	47	3,815	51	3,913
Screw ferrules received from the city of Lake View.......................	......	81	8	......	89
Screw ferrules received from the village of Hyde Park.....................	6	124	867	8	1,005
Screw ferrules received from the town of Lake	......	52	390	59	501
TOTAL	48	2,785	5,320	595	8,748

Although my report for the past year does not show that we inserted as many ferrules or issued as many permits for the old part of the city as during the previous year, yet, on the whole, it must be considered satisfactory when we reflect that it was a year of annexation of territory to the domain of our city, and that the annoyances, vexations and delays attending such annexation added considerable work to this Department; so that the amount of labor expended was fully equal to that of the previous year. The fact that we used up comparatively more drills in the insertion of ferrules during the past year than we have in former years, can be explained only by stating that many of the main pipes laid during the past few years were found to be of a quality more like steel—in fact, so hard that in some cases the insertion of ferrules was a difficult matter.

The average number of tappers employed during the past year was six, and of plumbing inspectors ten. The number of horses and wagons owned by the Department is three. Those tappers not having wagons were sent out with expressmen hired during the busy season.

I feel that I can not close this report without alluding to the necessity of providing, as expeditiously as possible, suitable plats for recording the locations of water service pipes, especially for the newly annexed suburbs. The few plats that the suburbs possessed are hardly practicable for the uses of the Assessment and Tapping sub-departments.

Most of the plat books used by said sub-departments have now been in use for over thirty years, and are getting in a rather dilapidated condition, and there is great danger of losing the valuable information they contain unless speedily replaced by new ones. This matter has been referred to before in one of the reports of the Water Assessor, and some steps have since been taken to remedy the evil; but in my opinion still greater exertions ought to be made, and, in order to expedite the work, the method of replacing them changed.

I wish to thank the heads of bureaus for the courteous manner in which they have treated me during the past year, and to compliment the men associated with me in this sub-department for the fidelity with which they have accomplished their several duties.

Respectfully submitted,

HENRY G. NAPER,

Permit Clerk Water Department.

REPORT

OF THE

Bureau of Sewers,

CITY OF CHICAGO.

BUREAU OF SEWERS.

CHICAGO, January 1, 1890.

W. H. PURDY, ESQ.,
Commissioner of Public Works.

DEAR SIR:—I herewith transmit the Annual Report of the Bureau of Sewers for the year ending December 31, 1889, showing in tabulated form the work done and the cost of same in the old city, and the amount of sewers built in the recently annexed territory during the year; also the total length and diameter of all sewers in place in the different wards of the city.

Following is the cost to the city in operating the several branches of this Department during the year 1889, in the old city limits:

For building sewers and catch-basins	$336,683 84
For repairing sewers and catch-basins	10,122 22
For cleaning sewers and catch-basins	61,503 01
For street intersections	53,337 03
For house drains	35,419 22
For salaries	17,080 00
For office expenses	1,561 74
Total	$515,707 06

SIZE, LENGTH AND COST OF SEWERS CONSTRUCTED DURING THE YEAR 1889, IN THE OLD CITY LIMITS.

LENGTH.	SIZE.	Average Cut.	Average Cost per Foot.	TOTALS.
56,520	12 inches.	7.4	$ 81	$45,781 20
43,709	15 inches.	7.9	91	39,775 19
1,246	18 inches.	8.3	1 16	1,445 36
36,026	2 feet.	9.8	1 62	58,362 12
13,080	2½ feet.	9.6	1 87	24,459 60
5,481	3 feet.	10.1	2 62	14,360 22
1,350	3½ feet.	9.5	3 27	4,414 50
1,280	4 feet.	11.5	4 41+	5,644 62
5,390	5 feet.	14.0	5 85	31,531 50
5,589	6 feet.	14.3	5 98	33,422 22
1,352	7 feet.	14.2	9 60	12,979 20
				$272,175 73

3,565 cubic yards rock excavation..................		$14,260 00
1,351 catch-basins built...........................	$57,271 02	
Less by miscellaneous credits......................	7,022 91	
		50,248 11
Total cost of sewers and catch-basins......		$336,683 84
Amount advanced by private parties and expended for constructing sewers in the districts of Lake View and Hyde Park and charged to Sewers, North and South Divisions..............		13,550 70
Total................................		$350,234 54

TOTAL NUMBER OF CATCH-BASINS AND MAN-HOLES IN PLACE DECEMBER 31, 1889, IN THE PRESENT CITY LIMITS.

CATCH-BASINS BUILT DURING THE YEAR 1889.				Total Built in 1889.	Total Built Previous to 1889.	Total in Place December 31, 1889.
DIVISIONS.	South.	West.	North.			
Catch-basins (Old City).	228	1022	101	1,351	16,050	17,401
Catch-basins—Lake View				453	1,720	2,173
Catch-basins—Town of Lake				277	2,080	2,357
Catch-basins—Hyde Park				258	1,314	1,572
TOTALS				2,339	21,164	23,508

MAN-HOLES BUILT DURING THE YEAR 1889.				Total Built in 1889.	Total Built Previous to 1889.	Total in Place December 31, 1889.
DIVISIONS.	South.	West.	North.			
Man-holes (Old City)..	269	878	43	1,190	17,577	18,767
Man-holes—Lake View				516	2,404	2,920
Man-holes—Town of Lake				281	2,933	3,214
Man-holes—Hyde Park				628	1,857	2,485
TOTALS				2,615	24,771	27,386

TOTAL COST FOR THE CONSTRUCTION OF SEWERS AND CATCH-BASINS AND CLEANING SAME SINCE THE ESTABLISHMENT OF THE SEWERAGE SYSTEM IN 1855, TO JANUARY 1, 1890.

Year.	Lineal feet of Sewers built.	No. of Catch-Basins built.	No. of Man-Holes built.	No. of House Drains put in.	Cost of cleaning Sewers and Catch-Basins.	Street Intersections and repairs of Sewers.	Cost of Constructing.
Prev'l's to 1861.	283,586	1,174	2,102	2,194	$ 5,619 48	No. amts. found on report.	$ 665,188 46
1861	2,826	18	33	243	1,715 60	$ 2,951 76	3,617 31
1862	15,676	72	66	365	4,897 24	3,024 07	57,036 42
1863	39,605	192	204	536	5,065 40	2,058 11	169,527 38
1864	25,021	189	183	512	9,417 81	4,597 63	87,221 48
1865	29,948	223	168	1,288	13,818 07	7,493 56	137,643 02
1866	48,127	327	271	3,732	28,445 16	7,773 65	225,564 53
1867	89,681	418	555	3,703	26,540 81	9,581 42	416,730 51
1868	47,841	480	293	3,261	26,954 06	11,287 08	197,152 92
1869	139,705	771	928	3,979	26,015 68	7,527 16	654,141 26
1870	78,166	626	468	5,187	21,464 30	10,954 74	258,664 70
1871	50,716	277	357	3,093	17,415 46	42,557 72	153,295 36
1872	47,342	245	341	1,435	21,484 16	16,975 40	173,255 76
1873	146,702	897	1,015	4,691	31,229 27	29,781 97	450,222 90
1874	222,322	1,054	1,474	6,292	36,884 57	21,996 72	587,507 38
1875	120,971	958	789	3,365	32,098 23	28,107 40	342,932 89
1876	15,248	155	75	1,172	29,345 41	19,803 29	79,545 28
1877	64,666	363	431	1,822	35,763 33	16,959 44	291,829 63
1878	88,031	492	603	1,544	25,704 37	19,259 49	37,264 97
1879	145,381	820	1,043	2,953	29,283 67	10,649 69	130,840 50
1880	79,128	271	554	4,196	25,561 48	25,068 11	92,544 08
1881	132,076	548	917	4,810	34,512 15	30,967 89	452,310 06
1882	98,515	792	725	5,677	33,969 35	26,618 05	224,450 16
1883	75,364	835	497	5,963	34,749 74	25,140 81	232,084 33
1884	101,547	751	654	5,957	43,678 03	37,893 29	258,020 91
1885	118,647	796	854	6,325	46,532 18	45,333 02	203,188 03
1886	103,193	734	723	7,441	51,110 46	50,707 64	177,647 24
1887	90,584	756	605	8,100	50,264 65	43,789 60	186,496 98
1888	104,903	816	674	8,152	52,422 41	53,782 97	228,567 57
1889	171,023	1,351	1,190	4,308	61,503 01	63,459 25	336,683 84
An'xed Dis'ts.	993,573	6,102	8,620	No re	cord. Costs	not known.	
Totals.	†3,770,014	23,503	*27,412	112,291	$863,465 54	$676,100 93	$7,511,175 86

†Of this amount, 5,797 feet have been taken up and replaced by sewers of larger size, leaving in place January 1, 1890, 3,764,217 feet, or 712,919 miles.

*Of this amount, twenty-six man-holes have been abandoned, leaving in place January 1, 1890, 27,386.

Of the above, 338,900 miles are constructed of brick, and 374,019 miles are of vitrified clay pipe.

LENGTH AND INTERIOR DIAMETER IN FEET, OF SEWERS IN PLACE, DECEMBER 31, 1889, IN THE DIFFERENT WARDS OF THE PRESENT CITY LIMITS.

WARDS.	9 Feet.	8 Feet.	7½ Feet.	7 Feet.	6½ Feet.	6 Feet.	5½ Feet.	5 Feet.	4¾ Feet.	4½ Feet.	4 Feet.	3½ Feet.	3¼ Feet.	3 Feet.	2¾ Feet.	2½ Feet.	2¼ Feet.	2 Feet.	20 Inch.	18 Inch.	15 Inch.	12 Inch.	9 Inch.	6 Inch.	TOTAL.
Old City Limits.																									
1st								247			1,926			12,327		17,033	6,077	15,210			1,870	66,572			121,262
2d						1,480		4,255			670			3,648		15,280	282	25,369		985	1,320	41,539			94,828
3d											670			668		14,692		22,750		3,720	5,904	37,861			86,265
4th						704		1,058		1,261	1,061	916		5,057		24,784		27,376		5,176	8,516	39,657			115,566
5th						1,680		1,360		2,600	4,180	1,600		6,558		7,020		34,157		4,058	14,369	46,251			123,833
6th					2,132	2,807		6,070		3,532	4,975	1,685		10,446		20,879		50,573	1,625	9,120	27,821	53,996			195,661
7th								5,750		280	5,040	2,958		4,137		3,683		21,572			3,686	31,368			78,474
8th										3,955	4,000	2,323		1,863		2,545		20,085			4,403	36,206			75,380
9th	1,625						2,651			3,675	4,925	3,972		1,984		971		13,013		125	18,726	40,907			92,574
10th	8,003	2,493		1,462	1,380	8,308	1,463	3,380		6,114	12,856	9,754		9,505		7,500		17,879		667	48,367	51,508			190,639
11th										18,440	9,541			758		2,225		34,093		999	3,925	45,789			115,770
12th						50	2,656			4,075	10,260	10,430		14,090		10,725		68,805		10,665	43,566	104,741			280,063
13th								1,350			10,290	8,645	333	8,004		6,454		30,466		4,761	19,623	63,601			153,527
14th		1,320	3,972	2,702		518	1,370	8,310		6,355	3,245	665	332	658		4,778		32,773		4,230	26,065	46,315			143,608
15th	5,865	3,952				7,359	1,371	1,350			2,309	1,626		4,444		9,576		31,445		330	20,258	36,536			126,511
16th						1,494		5,210			5,275			2,265		382		16,778			9,371	29,271			70,046
17th						1,296		6,817		6,940	6,755			4,315				35,074			650	21,493			83,340
18th								10,775		4,011								32,845				31,529			79,160
19th								9,305		10,130	9,390			1,023				36,055			1,014	42,641			109,558
20th										2,220	3,000	2,739		3,168		7,333		23,619		5,010	13,168	36,493			96,750
21st										2,843	2,510	1,020		515		12,010		16,900		1,275	6,230	45,526			88,829
22d								2,765		655	680			2,179		7,525		22,499		1,526	355	34,495			76,259
23d						753		5,583			3,157			1,962		3,841		25,833			1,726	33,146			76,001
24th						3,301		5,537		2,615	2,591			4,531		1,441		41,362		661	2,642	35,659			100,340
Lake View.																									
25th											4,780			8,440	1,320	8,340	1,420	19,410	2,160	14,150	35,860	74,340	3,170		173,390
26th						6,330	1,250	9,520		1,320	10,600	6,700		8,310		6,540		17,280		3,380	22,030	33,680	2,520		129,460
Town of Lake.																									
29th				5,290		4,425		7,070	3,933	2,650	6,380	740		5,320		3,926		3,650		12,302	23,312	13,502	225		93,905
30th				4,010	3,965	2,635	2,654	2,984		5,283	6,785	6,817		5,294		6,519		3,635		15,738	59,762	22,198	1,913		150,192
31st						1,327	1,325	1,343		1,257	1,354	1,332				4,822		1,350		5,216	29,369	35,815	16,457	16,270	117,237
Hyde Park.																									
32d								1,950		2,200	19,017	6,754	2,451	4,726		3,995		99,566	520	4,119	34,028	38,454			217,780
33d										1,600		2,732		385				1,223		658	4,069	5,391			16,058
34th										2,640	5,697	442	222	222		2,122	4,771	28,011			6,943	17,795	26,917	769	96,551
TOTAL	15,493	7,765	3,972	13,464	7,477	44,467	14,740	101,989	3,933	96,651	163,989	73,850	3,338	136,802	1,320	216,941	12,550	870,656	4,405	106,961	498,948	1,294,365	51,202	17,039	3,764,217

SEWERS CONSTRUCTED IN THE YEAR 1889 IN THE WEST DIVISION.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Ada	Erie	Ohio	1	265
Albany avenue	Warren avenue	Madison	1	256
Ambrose	Western avenue	Oakley avenue	1¼	627
Asylum place	Leavitt	St. Hedwig's	1	316
Augusta	Kedzie avenue	Grand avenue	6	518
Augusta	Drummond	Kedzie avenue	7	1,352
Armitage avenue	Milwaukee avenue	California avenue	6	2,296
Blanche	Ashland avenue	Noble	1	1,123
California avenue	Milwaukee avenue	Johnston	1	192
California avenue	Bloomingdale road	Courtland	1¼	645
California avenue	Bloomingdale road	Wabansia avenue	1¼	525
California avenue	North avenue	Wabansia avenue	2	782
California avenue	Armitage avenue	Courtland	2	663
California avenue	Shakespere	Johnston	2	676
California avenue	Armitage avenue	Shakespere	2½	1,153
California avenue	Laughton	Twenty-sixth	3	1,291
Campbell avenue	Taylor	Fillmore	1	333
Carroll avenue	Kedzie avenue	Westward	2	380
Central Park avenue	Twenty-sixth	Northward	2	516
N. S. Central Park boulevard	Kedzie avenue	Westward	1	220
Church court	Aberdeen	Westward	1	495
Churchill	22 feet west of Robey	Westward	1	14
Clifton Park avenue	Ogden avenue	Southward	1	325
Clifton Park avenue	C. B. & Q. R. R.	Twenty-sixth	1	2,422
Coulter	Oakley avenue	Chase	1	412
Coulter	Oakley avenue	Collins court	1	370
Coulter	Hoyne avenue	Robey	1	751
Coulter	Leavitt	Collins court	1¼	375
Collins court	Laughton	Coulter	1	505
Congress	Spaulding	Homan avenue	1¼	665
Congress	Kedzie avenue	Spaulding avenue	2	667
Colorado avenue	Central Park avenue	Boulevard	2	1,407
Crawford avenue	Madison	Lake	1¼	1,750
Crystal	Hoyne avenue	Leavitt	1	598
Cypress	Twelfth	Northward	1	143
Davis	Hirsch	Potomac	1	674
Davis	Hirsch	Northward	1¼	365
Davis	Division	Potomac	2	610
Diller	Kinzie	Austin avenue	1	345
Dudley	Division	Thomas	1	585
Dudley	Chicago avenue	Iowa	1	625
Dudley	Bloomingdale road	Wabansia avenue	1¼	650
Dudley	North avenue	Wabansia avenue	2	630
Dudley	Armitage avenue	Hervey	2	655
Division	Sacramento avenue	California avenue	1¼	1,282
Edgar	Bloomingdale road	Wabansia avenue	1¼	650
Edgar	North avenue	Wabansia avenue	2	627
Eighteenth	Oakley avenue	Westward	1	477
Eighteenth	Robey	Lincoln	1	670
Elston avenue	Paulina	Webster avenue	2	1,018
Elston avenue	Binzo	Webster avenue	2½	966

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Elston avenue	Paulina	Southward	2½	604
Elston avenue	Fullerton avenue	Binzo	3	902
Elston avenue	Fullerton avenue	Snow	3	1,317
Elk Grove	Armitage avenue	Hervey	2	657
Erie	Oakley avenue	Western avenue	3	633
Fairfield avenue	Harvard	Southward	1	425
Fairfield avenue	Hirsch.	Thompson	1¼	663
Fairfield avenue	North avenue	Thompson	2	667
Fillmore	Rockwell	Eastward	1¼	132
Fillmore	Kedzie avenue	Albany avenue	2	665
Flournoy	Washtenaw avenue	Rockwell	1	575
Flournoy	Francisco	Sacramento avenue	1	680
Flournoy	California avenue	Washtenaw avenue	1¼	668
Francisco	Van Buren	Jackson	1	458
Francisco	Madison	Warren avenue	1	262
Francisco	Lake	Southward	1	330
Francisco	South of Walnut	Fulton	1	461
Francisco	Fulton	Kinzie	1¼	554
Francisco	Lake	Northward	1¼	240
Francisco	Thomas	Division	2	647
Francisco	Augusta	Thomas	2½	665
Fulton	Sacramento avenue	Albany avenue	1	670
Fulton	Kedzie avenue	Westward	2	630
Fullerton avenue	Elston avenue	Western avenue	6	2,775
Girard	Bloomingdale road	Wabansia avenue	1¼	646
Girard	North avenue	Wabansia avenue	2	632
Hamlin	Lake	Fulton	1	381
Hastings	Leavitt	Hoyne avenue	1	635
Harrison	Washtenaw avenue	Rockwell	1¼	575
Harrison	Sacramento avenue	Albany avenue	1	674
Harrison	California avenue	Washtenaw avenue	2	625
Harrison	Kedzie avenue	Albany avenue	2	670
Hinman	California avenue	Westward	1¼	380
Ingraham	Elston avenue	Westward	1	295
Jane	Ashland avenue	Wood	1	1,055
Jane	California avenue	Rockwell	1	1,340
Kedzie avenue	Augusta	Ohio	5	2,690
Kedzie avenue	Ohio	Central Park boulevard	1¼	585
Laflin	Twenty-first	Northward	1	130
Lake	Crawford avenue	Hamlin avenue	1	1,280
Lexington	Washtenaw avenue	Rockwell street	1	565
Lexington	California avenue	Washtenaw avenue	1¼	668
Leavitt	Chicago avenue	Rice	2	325
Leavitt	Frankfort	Bremen	2	1,007
Lumber	Twenty-second	Seward	1¼	966
Lumber	Canal	Wharf	1¼	350
Maplewood avenue	Fulton	Northward	1	220
Matthew	Wood	Eastward	1	380
McGovern	Milwaukee avenue	Westward	2	1,175
Millard avenue	C., B. & Q. R. R.	Twenty-fourth	1	910
Millard avenue	Twenty-fourth	Twenty-sixth	1	1,330

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Millard avenue....	Twenty-seventh	South of Twenty-eighth ...	1	970
Millard avenue.....	Twenty-second.....	Ogden avenue......	1¼	835
Monroe............	Colorado avenue ..	Northwest	1	143
Monroe.	Albany avenue	Westward	1	458
Monroe............	Spaulding avenue..	Homan avenue.....	1¼	683
Monroe...........	Kedzie avenue	Spaulding avenue...	2	616
Moore.............	Kroll..............	Robey.............	1	405
Moore.............	Hoyne avenue.....	Kroll.............	1¼	270
Nineteenth	Robey	Lincoln............	1	634
North avenue.....	California avenue...	Kedzie avenue.....	5	2,700
Oakley avenue.....	Division.....	Potomac avenue....	2	613
Oakley avenue.....	Coulter............	Twenty-second	1	1,960
Oakley avenue.....	Potomac avenue...	Northward.........	1	265
Oakley avenue.....	Blue Island avenue..	Coulter....	1¼	260
Ogden avenue.. ...	Homan avenue....	Spaulding	2	730
Owasco....	California avenue...	Washtenaw avenue.	1	628
Paulina...........	Fifteenth	Southward....	1	125
Paulina............	Sixteenth..........	Northward.........	1	125
Paulina............	Rebecca...........	Southward.	1	125
Paulina............	Nineteenth	Northward....... .	1	150
Paulina........ ...	Nineteenth	Southward.........	1	150
Paulina............	Hinman	Southward.........	1	155
Paulina............	Twenty-first	Southward.........	1	150
Paulina	Twenty-first	Northward.........	1	150
Paulina............	Van Horn	Northward	1	185
Polk	Campbell avenue...	Rockwell..........	1¼	610
Polk	California avenue...	Francisco...	1¼	670
Potomac avenue....	Hoyne avenue......	Eastward..........	1	224
Potomac avenue....	Western avenue	East of Oakley avenue....	1	795
Rice	Hoyne avenue......	Leavitt............	1	666
Robey.............	Lister	Southward.........	1	280
Robey.............	Moore.............	Twenty-second	1¼	625
Robey.............	Fullerton avenue ...	Lister	1¼	405
Robey.............	Webster avenue	Bremen	1¼	494
Robey.............	Blue Island avenue..	Moore............	2	612
Robey.............	Frankfort.........	Webster avenue....	2	495
Robey.............	Armitage avenue ...	Frankfort	2½	791
Rockwell..........	360 feet north of Ogden avenue	Northward.........	1	330
Rockwell..........	Division...........	Jane	1	345
Rockwell..........	Ogden avenue	Northward...... ..	1¼	360
Rockwell..........	Thomas	Jane	1¼	319
Rockwell..........	Bloomingdale road..	Wabansia avenue...	1¼	644
Rockwell..........	North avenue	Wabansia avenue...	2	604
Rockwell..........	Sixteenth..........	Ogden avenue......	2½	1,285
Rockwell...	Nineteenth	Twenty-second	3½	1,350
Rockwell..........	Sixteenth..........	Nineteenth	3	1,338
Sacramento avenue.	Madison...........	Warren avenue.....	1	262
Sacramento avenue.	Lake	Southward.........	1	262
Sacramento avenue.	Walnut....... ..	Southward.........	1	166
Sacramento avenue.	Walnut............	Kinzie.............	1	847
Sacramento avenue.	Flournoy	Southward..	1	167

WEST DIVISION—CONTINUED.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Sacramento avenue.	Lake	Northward	1¼	262
Sacramento avenue.	Colorado avenue	Madison	1¼	400
Seymour	North avenue	Wabansia avenue	2	662
Seymour	Bloomingdale road	Wabansia avenue	1¼	642
Sixteenth	Kedzie avenue	Spaulding avenue	1¼	645
Sloan	Elston avenue	Westward	1	155
String	159 feet south of Twenty-first	Southward	1	95
Superior	Washtenaw avenue	Rockwell	1¼	638
Talman avenue	Twelfth	Southward	1	425
Talman avenue	Fulton	Southward	1	370
Talman avenue	Fulton	Northward	1	291
Thomas	California avenue	Rockwell	2	1,341
Thomas	Rockwell	Seymour	1	672
Twelfth	Sacramento avenue	Francisco	1¼	668
Twelfth	Albany avenue	Sacramento avenue.	1¼	668
Twelfth	California avenue	Francisco	2	677
Twentieth	Robey	Lincoln	1	635
Twenty-third	Lawndale avenue	Millard avenue	1¼	300
Twenty-third	Clifton Park avenue.	Central Park avenue.	1¼	366
Twenty-fourth	Lawndale avenue	Millard avenue	1¼	300
Twenty-fourth	Clifton Park avenue.	Central Park avenue.	1¼	366
Twenty-fifth	Lawndale avenue	Millard avenue	1¼	300
Twenty-fifth	Clifton Park avenue.	Central Park avenue.	1¼	366
Twenty-sixth	Lawndale avenue	Millard avenue	1¼	345
Twenty-sixth	Clifton Park avenue.	Central Park avenue.	1¼	366
Twenty-seventh	Central Park avenue	Millard avenue	1¼	305
Twenty-eighth	Central Park avenue	Millard avenue	1¼	305
Utica	Twelfth	Fillmore	1	633
Wabansia avenue	Elston avenue	McHenry	1	650
Wabansia avenue	Ashland avenue	Paulina	1	625
Wabansia avenue	Commercial avenue.	West of Dudley	1	1,359
Wallack court	Eighteenth	Northward	1	235
Washtenaw avenue	Division	Jane	1	345
Washtenaw avenue.	Thomas	Jane	1¼	319
Washtenaw avenue.	Bloomingdale road	Wabansia avenue	1¼	647
Washtenaw avenue.	North avenue	Wabansia avenue	2	662
Washtenaw avenue.	Chicago avenue	Superior	2	340
Western avenue	Chicago avenue	Superior	1	325
Western avenue	Ohio	Erie	1	297
Western avenue	Potomac	Hirsch	1	670
Western avenue	Huron	Superior	1¼	326
Western avenue	Thompson	Hirsch	1¼	657
Western avenue	Erie	Huron	2	333
Western avenue.	North avenue	Thompson	2	675
Western avenue	Division	Potomac avenue	2	663
Wood	Armitage avenue	Hervey	1¼	608
York	Ashland avenue	Paulina	1	531
York	Hermitage avenue	Wood	1	268
TOTAL				124,790

SEWERS CONSTRUCTED IN THE YEAR 1889 IN THE SOUTH DIVISION.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Ashland avenue	Pumping works	Thirty-first	4	1,280
Auburn	Attica	Thirty-third	1¼	304
Auburn	Thirty-first	Attica	2	828
Bloom	Thirty-seventh	Thirty-eighth	1¼	670
Bonfield	Lyman	Southward	1	120
Butler	Thirty-sixth	Thirty-seventh	1¼	614
Butler	Thirty-seventh	Thirty-eighth	1¼	338
Butler	Thirty-eighth	Egan avenue	1¼	316
Butler	Twenty-fifth	Twenty-fifth place	1¼	266
Butler	Thirty-seventh	Thirty-seventh court.	1½	285
Butler	Thirty-eighth	Thirty eighth court.	1½	333
Butler	Thirty-sixth	Northward	2	290
Calumet avenue	Thirty-seventh	Northward	1	327
Champlain	Thirty-third	Thirty-fourth	1¼	650
Charlton	North of Thirty-third	North of Thirty-fourth	1¼	536
Charlton	Thirty-fifth	North of Thirty-fourth	2	766
Dashiel	South of Thirty-second	Thirty-third	1¼	528
Dashiel	Thirty-first	South of Thirty-second	2	804
Eda	Wabash avenue	Indiana avenue	1	689
Gage	Thirty-seventh court.	South of Thirty-eighth	2	619
Gage	Thirty-sixth	Thirty-seventh court.	2½	713
Hoyne avenue	Thirty-third	Thirty-fourth	1¼	650
Honore	Thirty-seventh	Egan avenue	2	1,331
Honore	Thirty-fifth	Thirty seventh	2½	1,300
Leavitt	Thirty-third	Thirty-fourth	1¼	650
Lincoln	Thirty-seventh	Egan avenue	2	1,331
Lincoln	Thirty-fifth	Thirty-seventh	2½	1,293
Lowe avenue	South of Thirty-second	Thirty-third	1¼	526
Lowe avenue	Thirty-third	North of Thirty-fourth	1¼	530
Lowe avenue	Thirty-first	South of Thirty-second	2	757
Lowe avenue	Thirty-fifth	North of Thirty-fourth	2	757
Lundy's lane	Thirty-third	Thirty-fourth	1¼	663
Lundy's lane	Thirty-fifth	Thirty-seventh	2½	1,300
Robey	Thirty-fifth	Thirty-seventh	2½	1,300
Shields avenue	Thirty-first	Thirty-second	1½	628
Springer	Fisk	Laurel	1	304
Springer	Mospratt	Fisk	1¼	325
Stewart avenue	Twenty-fifth	Twenty-sixth	1¼	624
Stewart avenue	Twenty seventh	Napoleon place	1¼	545
Stewart avenue	Twenty-fourth	Twenty-fifth	2	704
Stewart	Twenty-sixth	Twenty-seventh	2	525
Twenty-fifth	Butterfield	Clark	1	98
Twenty-fifth place	Halsted	Emerald avenue	1	239
Twenty-seventh	Butterfield	La Salle	1	202
Twenty-ninth	West of Emerald ave.	East of Lowe avenue	1	848
Thirty-third	Champlain	Oakley avenue	2½	1,000
Thirty-fourth	Vernon avenue	Rhodes avenue	1	346
Thirty-fourth	Vernon avenue	South Park avenue	1	350
Thirty-sixth	Butler	West of Emerald ave.	1	1,784
Thirty-sixth	Tucker	Halsted	1	410
Thirty-sixth	Gage	Tucker	1¼	433

SOUTH DIVISION—CONTINUED.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Thirty-seventh	Tucker	Halsted	1	409
Thirty-seventh	Gage	Tucker	1¼	438
Thirty-seventh court.	Tucker	Halsted	1	406
Thirty-seventh court.	Gage	Tucker	1¼	483
Thirty-seventh court.	Butler	Eastward	1¼	540
Thirty-eighth	Butter	Eastward	1¼	548
Thirty-eighth	Parnell avenue	Butler	2	333
Thirty-eighth court.	Butler	Eastward	1¼	558
University place	Rhodes avenue	Eastward	1	258
Yorktown	Thirty-third	Thirty-fourth	1¼	650
TOTAL				37,592

SEWERS CONSTRUCTED IN THE YEAR 1889 IN THE NORTH DIVISION.

STREET.	FROM	TO	Diam in Feet.	Length in Feet.
Alley bet. Astor and Lake Shore Drive.	276 feet north of Schiller.	Northward	1	80
Astor	Schiller	Burton place	1	620
Chicago avenue	Pine	Eastward	1	178
Chestnut place	72 feet north of Chestnut.	Northward	1	66
Clyde	Centre	Southward	1	290
Eugenie	Larrabee	Mohawk	1	260
Hammond	Tell court	Southward	1	306
Hawthorne avenue.	Rees	Southeast	1¼	707
Hickory	Rees	Eastward	2	485
Lewis	Clybourn avenue	Hawthorne avenue	1¼	340
Osgood	Belden avenue	Fullerton avenue	1	650
Rees	Halsted	Hawthorne avenue	2	512
Rees	Division	Hickory	2½	628
Ward	Webster avenue	Southward	1	852
TOTAL				5,469

WING SEWERS PUT IN IN THE YEAR 1889—WEST DIVISION.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Albany avenue	Manhole in Twelfth	Northward	1	62
Alley north of Carroll avenue.	Manhole in Kedzie avenue.	Westward	1¼	39
North side Bloomingdale road	Manhole in Girard	East and west.	1	94
South side Bloomingdale road	Manhole in Girard	East and west.	1	81
Bloomingdale road	Manhole in Wood	East and west	1	70
Brand	Manhole in Fullerton ave.	Northward	2	58
Carroll avenue	Manhole in Kedzie avenue.	East and west	2	100
Carroll avenue	Manhole in Francisco	Westward	1	40
Congress	Manhole in California ave.	Eastward	2	46
East side Congress Park	Manhole in Harrison	Northward	1	36
West side Congress Park	Manhole in Harrison	Northward	1	36
Crystal	Manhole in Leavitt	Eastward	1	40
Cypress	Manhole in Twelfth	Northward	1	100
Dania avenue	Manhole in North avenue.	Northward	1¼	55
Dudley	Manhole in Armitage ave.	Northward	2	44
Elk Grove	Manhole in Armitage ave.	Northward	2	44
Fairfield avenue	Manhole in North avenue.	Northward	1¼	57
Fillmore	Manhole in California ave.	Westward	2	40
Francisco	**35 feet north of manhole in Colorado ave**	Northward	1	10
Fulton	Manhole in Kedzie avenue.	Westward	2	50
Harrison	Manhole in California ave.	Eastward	2	44
Harvard	Manhole in California ave.	Westward	2	40
Hoyne avenue	Manhole in Nineteenth	North and south.	1	78
Hoyne avenue	Manhole in Hinman	North and south.	1	82
Hoyne avenue	Manhole in Twelfth	Southward	1	80
Hoyne avenue	Manhole in Twentieth	North and south.	1	82
Hoyne avenue	Manhole in Armitage ave.	Northward	2½	43
Lincoln	Manhole in Twelfth	Southward	1	80
Maplewood avenue	Manhole in North avenue	Northward	1¼	55
Monroe	Manhole in Kedzie avenue	Westward	2	50
Oakley avenue	Manhole in Nineteenth	North and south.	1	80
Oakley avenue	Manhole in Twentieth	North and south.	1	85
Oakley avenue	Manhole in Hinman	North and south.	1	92
Owasco	Manhole in California ave.	Eastward	1	48
Park avenue.	Manhole in Kedzie avenue	Eastward	1	42
Paulina	Manhole in Nineteenth	North and south.	1	78
Paulina	Manhole in Hinman	North and south.	1	82
Polk	Manhole in California ave.	Eastward	1¼	43
Randolph	Manhole in Albany avenue.	Westward	1	41
Robey	Manhole in Armitage ave.	Northward	2½	44
Rockwell	Manhole in North avenue.	North and south.	2	114
Talman avenue	Manhole in North avenue.	Northward	1¼	56
Taylor	Manhole in California ave.	Westward	1¼	40
Thompson	Manhole in Leavitt	Westward	1	44
Twenty-third	Manhole in Millard avenue.	Eastward	1	36
Twenty-fourth	Manhole in Millard avenue.	Eastward	1	36
Twenty-fifth	Manhole in Millard avenue.	Eastward	1	36
Union	Manhole in Twenty-second	Southward	1¼	34
Wallack court	Manhole in Eighteenth	Northward	1	42
Washtenaw avenue	Manhole in Harrison	Southward	1	36
Washington	Manhole in Albany avenue.	Westward	1	41
TOTAL				2,886

WING SEWERS PUT IN IN THE YEAR 1889—SOUTH DIVISION.

STREET.	FROM	TO	Diam. in Feet	Length in Feet
Arch	Manhole in Lyman	Southward	1	45
Haines court	Manhole in Thirty-first	Northward	1¼	18
Springer	Manhole in Ullman	Eastward	1	31
Thirty-first	Manhole in Haines court	East and west	1	90
Thirty-third	Manhole in Ullman	Westward	1	32
Twenty-eighth	Manhole in Emerald ave	East and west	1	70
TOTAL			.....	286

TOTAL FEET OF SEWERS CONSTRUCTED DURING THE YEAR 1889, IN THE OLD CITY LIMITS.

West Division	127,676
South Division	37,878
North Division	5,469
Grand total, 32.39 miles	171,023

SEWERS CONSTRUCTED IN THE YEAR 1889 IN LAKE VIEW.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Addison avenue	Robey	Hoyne avenue	2½	665
Addison avenue	Hoyne avenue	Leavitt	2	660
Ashland avenue	Diversey	Wrightwood avenue.	2	1,314
Ashland avenue	Graceland avenue	Byron	2	669
Ashland avenue	Byron	Grace	1½	669
Ashland avenue	Nellie avenue	Cornelia	1¼	1,338
Ashland avenue	Nellie avenne	Grace	1	663
Ashland avenue	Cornelia	Roscoe	1	624
Belmont avenue	Sheffield avenue	Baxter	1½	335
Belmont avenue	Clifton avenue	Seminary avenue	1½	327
Belmont avenue	Seminary avenue	Baxter	1	335
Belmont avenue	Ashland avenue	Perry	1¼	659
Belmont avenue	Perry	Racine avenue	1	1,901
Berteau avenue	Perry	Clark	1	815
Blucher	Wellington	Nelson	1¼	382
Blucher	Nelson	Noble avenue	1	288
Byron	Rokeby	East and west	1	945
Byron	Lake Shore	Pine Grove avenue	1¼	920
Byron	Pine Grove avenue	Evanston avenue	1	407
Clifton	School	Roscoe	1	633
Commercial	200 feet north of Tuttle avenue	Webster	1	845
Commercial	Paulina	Terra Cotta place	1	755
Cornelia	Lincoln	Wood	1	308
Cosgrove	Perry	Clark	1¼	625
Early avenue	Swift	West	1	560
Evanston avenue	Brym Maur avenue.	Hollywood avenue	1¼	670
Evanston avenue	Hollywood avenue	North	1	1,153
Francis	Swift	East	1	315
Francis	Swift	West	1	400
Gary place	Pine Grove avenue	West	1	12
George	Racine avenue	Seminary avenue	1	663
Goodwin	North of Fifty-ninth.	Berwyn avenue	1¼	668
Goodwin	Berwyn avenue	Balmoral	1	665
Grace	Ashland avenue	Sheldon	1	875
Hazel	Sulzer	South	1	1,116
Lawrence avenue	Lake Michigan.	Sheffield avenue	4½	1,260
Lakeside avenue	Sheffield avenue	Hazel	1¼	608
Lakeside avenue	Halsted	Hazel	1	645
Lincoln avenue	Addison	Cornelia	1½	758
Lincoln avenue	Cornelia	St. Elmo	1¼	371
Lincoln avenue	St. Elmo	Roscoe	1	373
Melrose	Ashland avenue	Perry	1	667
Noble avenue	Ashland avenue	East	1	515
Otto	Halsted	West	1	803
Otto	Ashland avenue	Southport avenue	1	1,828
Palmer	Lawrence avenue	Leland avenue	1¼	669
Palmer	Leland avenue	Wilson avenue	1	663
Paulina	Lawrence avenue	North	1¼	779
Paulina	779 feet N. of Lawrence avenue	Webster	1	865
Perry	Sunnyside avenue	Wilson avenue	1	694
Perry	Graceland avenue	Belle Plain avenue	1¼	655

LAKE VIEW—CONTINUED.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Perry	Sulzer	Cosgrove	2	664
Perry	Belle Plain avenue	Berteau avenue	1	655
Pine Grove avenue	Nellie avenue	Gary place	1¼	348
East Ravenswood Park	Lawrence avenue	Leland avenue	1¼	716
East Ravenswood Park	Leland avenue	Wilson avenue	1	651
West Ravenswood Park	Lawrence avenue	Leland avenue	1¼	716
West Ravenswood Park	Leland avenue	Wilson avenue	1	656
Racine avenue	Belmont avenue	School	1½	661
Racine avenue	School	Roscoe	1	578
Reed place	Perry	Clark	1	550
Rokeby	Grace	Byron	1¼	560
Roslyn place	Clark	Lincoln Park	1	600
Roscoe	Ashland avenue	Southport avenue	1	1,380
Roscoe	Lincoln	Wood	1	645
Seminary avenue	Lill avenue	North	1	144
Sheffield avenue	Lawrence avenue	Wilson avenue	3½	1,874
Sheffield avenue	Wilson avenue	Sulzer	2	1,355
Sheffield avenue	Lawrence avenue	Amslie	1¼	905
St. Elmo	Lincoln	Wood	1	474
Sulzer	Sheffield avenue	Hazel	1¼	620
Sulzer	Hazel	Halsted	1	644
Thorndale avenue	Lake Shore	Evanston avenue	3½	1,525
Wilson avenue	Sheffield avenue	Hazel	1¼	655
Wilson avenue	Hazel	Halsted	1	651
Wilson avenue	Robey	West	1¼	658
Wilson avenue	**658 feet west of Robey**	Leavitt	1	665
Winthrop avenue	North of Fifty-ninth	Berwyn avenue	1¼	668
Winthrop avenue	Berwyn avenue	Balmoral	1	665
Windette avenue	Sheffield avenue	Hazel	1¼	610
Windette avenue	Halsted	Hazel	1	645
Wrightwood avenue	Ashland avenue	West	1¼	566
Wrightwood avenue	**566 feet W. of Ashland avenue**	N. W. R. R	1	704
Wrightwood avenue	Lewis	Southport avenue	1	949
Street between Graceland and Belle Plain avenues.	Perry	Southport avenue	1	875
TOTAL				59,964

WING SEWERS PUT IN IN THE YEAR 1889—LAKE VIEW.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Addison	Manhole in Halsted	Westward	1½	38
Ashland avenue	Manhole in Lawrence Avenue	Northward	1¼	45
Cornelia	Manhole in Halsted	Westward	1½	38
Cornelia	Manhole in Halsted	Eastward	1	38
Dunning	Manhole in Ashland avenue	Eastward	1	38
Eastwood avenue	Manhole in Sheffield avenue	Eastward	1¼	38
Galt	Manhole in Sheffield avenue	Eastward	1¼	38
George	Manhole in Ashland avenue	Eastward	1	38
George	Manhole in Sheffield avenue	Westward	1	38
Giddings	Manhole in Robey	Westward	1¼	45
Hoyne avenue	Manhole in Belmont avenue	Northward	1¼	38
Hoyne avenue	Manhole in Belmont avenue	Southward	1	38
Jamot	Manhole in Robey	Westward	1¼	45
Leavitt	Manhole in Belmont avenue	North and south.	1¼	76
Leland avenue	Manhole in Robey	Westward	1¼	45
Nelson	Manhole in Ashland avenue	Eastward	1	38
Noble avenue	Manhole in Ashland avenue	Westward	1¼	38
Noble avenue	Manhole in Ashland avenue	Eastward	1	38
Oakdale avenue	Manhole in Ashland avenue	Eastward	1	38
Robey	Manhole in Lawrence avenue	Northward	1½	45
Sulzer	Manhole in Sheffield avenue	Westward	1½	38
Sulzer	Manhole in Sheffield avenue	Eastward	1¼	38
Wellington	Manhole in Ashland avenue	Westward	1¼	38
Wellington	Manhole in Ashland avenue	Eastward	1	38
Wilson	Manhole in Sheffield avenue	Westward	3	38
Windette avenue	Manhole in Sheffield avenue	Eastward	1¼	38
Wolcott	Manhole in Lawrence avenue	Northward	1¼	45
Windsor avenue	Manhole in Sheffield avenue	Eastward	1¼	38
Wolfram	Manhole in Ashland avenue	Eastward	1	38
Wrightwood avenue	Manhole in Ashland avenue	Eastward	1	38
TOTAL				1,220

Total sewers constructed during the year 1889, i the district of Lake View, 61,184 feet.—11.59 mile

SEWERS CONSTRUCTED IN THE YEAR 1889 IN TOWN OF LAKE.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Aberdeen	Fifty-fourth	Alley north of Garfield boul'd	1	430
Alley bet. Emer'ld av. & Hals'd	Seventy-fifth	Alley north of Seventy-ninth.	½	2,425
Alley bet. Emer'ld av. & Hals'd	Seventy-fifth	Alley north of Seventy-ninth.	½	2,425
Alley north of Seventy-ninth	Halsted	Alley west of Wallace	¾	1,150
Alley north of Garfield boul'd	Center avenue	Aberdeen	1½	655
Alley north of Garfield boul'd	Morgan	Aberdeen	1¼	660
Alley bet. Sherman & Winter	Sixty-seventh	Sixty-ninth	1¼	1,260
Alley bet. Sherman & Winter	Fifty-ninth	North	¾	310
Butterfield	Fifty-third	Garfield boulevard	1¼	1,120
Butterfield	Cloud court	Southward	1	362
Carpenter	Fifty-fourth	Alley north of Garfield Boul'd	1	430
Dearborn	Fifty-third	Garfield boulevard	1¼	1,220
Dearborn	Cloud court	Southward	1	362
Emerald avenue	Seventy-ninth	Eightieth	1	630
Fifty-fourth court	Halsted	Morgan	1¼	1,289
Fifty-ninth	Wallace	Winter	1¼	610
Halsted	Thirty-ninth	Fifty third	7	9,300
Halsted	Fifty-third	Fifty-ninth	6½	3,965
Halsted	Fifty-ninth	Sixty-fifth	6	8,962
Halsted	Sixty-fifth	Sixty-seventh	5½	1,325
Halsted	Sixty-seventh	Sixty-ninth	5	1,343
Honore	Seventy-sixth	Seventy-fifth	1	650
Honore	Seventy-fifth	Seventy-fourth	¾	627
May	Fifty-fourth	Alley north of Garfield boul'd	1	430
Morgan	Fifty-fourth	Alley north of Garfield boul'd	1	430
Sherman	Seventy ninth	Eightieth	1	630
Sixtieth	Stewart avenue	Honore	¾	810
Sixty-seventh	Wright	Honore	1	480
Sixty-seventh	Halsted	Sherman	1¼	1,016
Sixty-ninth	Halsted	Wallace	4½	1,257
Sixty-ninth	Wallace	Stewart avenue	4	1,354
Sixty-ninth	Stewart avenue	Wentworth avenue	3½	1,332
Sixty-ninth	Wentworth avenue	Vincennes avenue	2½	982
Seventy-sixth	Goldsmith avenue	Honore	1	380
Seventy-sixth	Honore	Westward	¾	75
Winter	Seventy-ninth	Eightieth	1	630
Wright	Seventy-fourth	Seventy-sixth	1	1,806
TOTAL				47,622

9.02 Miles.

SEWERS CONSTRUCTED IN THE YEAR 1889 IN HYDE PARK.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Alley east of Drexel avenue.	Forty-first	Forty-second	1	727
Alley south of Forty-ninth.	Madison avenue	Monroe avenue	1	536
Alley east of Drexel avenue.	Forty-fifth	Forty-sixth	1¼	168
Alley east of Grand boulevard	Forty-fourth	North and south	1	465
Alley west of Sheridan avenue	South of Sixtieth	Woodlawn avenue	¾	393
Alley south of Sixtieth	Sheridan avenue	Madison avenue	¾	620
Alley south of Sixtieth	Madison avenue	Illinois Central R. R.	¾	388
Alley north of Sixty-seventh.	Hope avenue	Stony Island avenue	¾	511
Alley north of Sixty-seventh.	Hope avenue	Illinois Central R. R.	¾	693
Alley n. of Sixty sixth terrace	Hope avenue	Stony Island avenue	¾	514
Alley n. of Sixty sixth terrace	Hope avenue	Illinois Central R. R.	¾	636
Alley north of Sixty-sixth	Hope avenue	Stony Island avenue	¾	511
Alley north of Sixty-sixth	Hope avenue	Illinois Central R. R.	¾	583
Alley north of Sixty-fifth	Hope avenue	Stony Island avenue	¾	502
Alley north of Sixty-fifth	Hope avenue	Illinois Central R. R.	¾	514
Alley n. of Jackson Pk. terrace	Hope avenue	Ridge avenue	¾	316
Alley n. of Jackson Pk. terrace	Hope avenue	Stony Island avenue	¾	499
Alleys	Sixty-fourth	Robertson avenue	¾	113
Alleys	Sixty-fourth	Robertson avenue	½	383
Alley east of Greenwood ave.	Sixty-fifth	Sixty-seventh	¾	1,268
Alley west of Greenwood ave.	Sixty-fifth	Sixty seventh	¾	1,265
Alley east of Drexel avenue	Sixty-fifth	Sixty-seventh	1	47
Alley east of Drexel avenue	Sixty-fifth	Sixty-seventh	¾	1,218
Alley west of Drexel avenue	Sixty-fifth	Sixty-seventh	1	41
Alley west of Drexel avenue	Sixty-fifth	Sixty-seventh	¾	1,225
Alley west of Maryland avenue	Sixty-fifth	Sixty-seventh	1	47
Alley west of Maryland avenue	Sixty-fifth	Sixty-severth	¾	1,232
Alley east of Lexington avenue	Sixty-fifth	Sixty-seventh	¾	1,286
Alley west of Myrtle avenue.	Sixty-fifth	Sixty-sixth	¾	658
Berkeley avenue	Forty-fourth	Forty-fifth	1¼	613
Calumet avenue	Forty-third	Forty-fifth	2	1,294
Drexel avenue	Forty-fifth	Forty-sixth	2	660
Drexel avenue	Fifty-first.	Fifty-fourth	2	1,968
Drexel avenue	Fifty fourth	Fifty-fifth	2	649
Ellis avenue	Fifty-first	Fifty-fifth	2	2,605
Ellis avenue	Fifty-fifth	Fifty-sixth	2	660
Ellis avenue	Sixty-third	Sixty-fifth	1	1,323
Euclid avenue	Seventy-first	Seventy-third	1	1,241
Everett avenue	Fifty fourth	Fifty-fifth	1	506
Everett avenue	Fifty-fifth	Fifty-sixth	1¼	679
Forty-third	Ellis avenue	Drexel avenue	1¼	402
Forty-fourth	Cottage Grove avenue	Drexel avenue	1	303
Forty-fourth	Vincennes avenue	Grand avenue	1¼	480
Forty-fourth	Ellis avenue	Drexel avenue	1	386
Forty sixth	Lake avenue	Woodlawn avenue	1	467
Fiftieth	Ellis avenue	Drexel avenue	1	347
Grace	Alley north of Jackson terrace	Northward	½	97
Greenwood avenue	Sixty third	Sixty-fifth	1	1,292
Greenbay avenue	Eighty-ninth	Ninety-first	1	1,350
Hope avenue	Sixty-third	Sixty-seventh	1¼	2,622
Indiana avenue	Forty-seventh	Fifty first	2	2,631

HYDE PARK—CONTINUED.

STREET.	FROM	TO	Diam. in Feet.	Length in Feet.
Kimbark avenue	Fifty-fourth	Fifty-fifth	2	1,045
Kimbark avenue	Fifty-fourth	Northward	1	353
Kimbark avenue	Fifty-fifth	Fifty-sixth	2	660
Kimbark avenue	Fifty-eighth	Fifty-ninth	2	630
Lake avenue	Fortieth	Forty-first	2	961
Lake avenue	Forty-first	Forty-second	2	813
Lake avenue	Fifty-third	Fifty-fourth	2	952
Lexington avenue	Sixty first	Sixty-third	1	1,313
Madison avenue	Pumping station	Sixty-first	1	1,266
Madison avenue	Sixtieth	Sixty-first	¾	623
Michigan avenue	Forty-fifth	Forty-seventh	2	1,343
Michigan avenue	Fifty-fifth	Fifty-seventh	2¼	1,156
Michigan avenue	Fifty-seventh	Sixtieth	2	2,006
Michigan avenue	Sixtieth	Sixty-second	1¼	1,281
Michigan avenue	Sixty-second	Sixty-third	1	730
Monroe avenue	Fifty-eighth	Fifty-ninth	2	631
Myrtle avenue	Woodlawn avenue	Sixty-fifth	1	897
Oglesby avenue	Sixtieth	Sixty-first	¾	530
Prairie avenue	Forty-fifth	Forty-seventh	2	1,269
Ridge avenue	Alley north of Jackson Terrace	North and south	½	289
Sheridan avenue	Sixtieth	Sixty-first	¾	536
South Park court	Sixtieth	Sixty-first	¾	769
Stony Island avenue	Sixty-first	Sixty-third	1	1,201
Sixth-first	Madison avenue	I. C. R. R	¾	339
Sixty-second	Madison avenue	I. C. R. R	¾	279
Sixty-second place	Madison avenue	I. C. R. R	¾	220
Sixty-fifth	Cottage Grove ave	Myrtle avenue	1	1,005
Sixty-fifth	Cottage Grove ave	Myrtle avenue	¾	321
Seventy-first	L. S. & M. S. R. R.	C., P. & Ft. W. R.R.	3	111
Thirty-ninth	Langley avenue	Cottage Grove ave	2	765
Vincennes avenue	Forty-third	Forty-seventh	2	2,565
Wabash avenue	Forty-fourth	Forty-fifth	1	634
Wharton avenue	Sixty-third	Sixty-fifth	1	1,323
Woodlawn avenue	Sixty-third	Sixty-fourth	1	596
Woodlawn avenue	Sixty-fourth	Sixty-sixth	¾	983
TOTAL				70,329

13.32 Miles.

TOTAL LENGTH OF SEWERS CONSTRUCTED DURING THE YEAR 1889 IN THE PRESENT CITY LIMITS.

DIVISIONS.	LENGTH IN FEET.	MILES.
Old City Limits	171,023	32.39
District of Lake View	61,184	11.59
District of Lake	47,622	9.02
District of Hyde Park	70,329	13.32
GRAND TOTAL	350,158	66.32

MAN-HOLES AND CATCH-BASINS RAISED TO GRADE ON STREETS ORDERED IMPROVED, TOGETHER WITH COST OF SAME, DURING THE YEAR 1889, AS FOLLOWS:

No.	Description of work done.	Cement.	Brick	Covers.				Straight Pipe.			Curv. Pipe.	Junc.	Traps.	Boxes.	Cost.		TOTAL
		Barrels.		Iron.	Wood	Mil-w'kee.	Small Iron.	6 in. No. ft	9 in. No. ft.	12 in. No. ft.	9 in. No. ft.	9x15	9 in.	No. ft.	Material.	Labor and Teaming.	COST.
2,553 2,323	Man-holes raised to grade, Catch-basins raised to grade	3,558	1,114,010	1,467	1,053	27	25	96	2,039	35	45	2	10	1,982	$29,105 18	$24,231 85	$53,337 03

AMOUNT EXPENDED FOR REPAIRS OF SEWERS, MAN-HOLES AND CATCH-BASINS, ALSO MAN-HOLE AND CATCH-BASIN COVERS, DURING THE YEAR 1889, AS FOLLOWS:

No.	Description of work done.	Cement.	Brick.	Covers.		Straight Pipe.					Curved Pipe.				Junct's.			Slants.			Traps.		Boxes	COST.		
				Iron.	Wood	6 in.	9 in.	12 in.	15 in.	18 in.	6 in.	9 in.	12 in.	18 in.	6x15	9x6	6x12	6 in.	9 in.	12 in.	9 in.	12 in.	No. ft.	Material.	Labor and Teaming.	Total Cost
40 43	Man-holes repaired ..... Catch-basins repaired	73	21,200	8	4		43					15									3	1		$2,903 78	$7,218 44	$10,122 22
30	Feet of 6-in. drain repaired.	1				13					13															
310	Feet of 9-in. drain repaired.	13	3,500				258					48				2										
36	Feet of 12-in. sewer repaired	2						27					4				1									
97	Feet of 15-in. sewer repaired	4	200						75						11											
46	Feet of 18-in. sewer repaired	2	100							42				4												
405	Feet of 2-ft. sewers repaired	59	17,000	5	2														2							
40	Feet of 2½-ft. sewer repaired	13	4,000																							
104	Feet of 3-ft. sewer repaired.	24	7,000		2															3						
12	Feet of 4-ft. sewer repaired.	10	3,000		1																					
53	Feet of 5-ft. sewer repaired	33	10,000		1													2					120			

	Cement.	Brick.	Iron Covers.	Wood Covers.	Old Wood Covers.	Iron Lids.	Wood Lids.	M-H.&C.-B. Tops.	Grates.
Man-hole and catch-basin covers repaired	155	15,000	31	206	145	178	1,917	753	261

RECEIPTS AND EXPENDITURES IN THE HOUSE DRAIN DEPARTMENT DURING THE YEAR 1889.

DIVISIONS	PERMITS ISSUED					Receipts.	Expenditures.
	15-inch.	12-inch.	9-inch.	6-inch.	Total.		
West		1	59	2,229	2,289	$11,690 00	
South			69	665	734	3,945 00	
North	1		10	210	230	1,227 50	
Licenses						910 00	
Special assessments						21,438 61	
Miscellaneous credits						552 00	
TOTALS	1	1	147	3,104	3,253	$39,763 11	
Superintendence, Inspection and Office Supplies							$24,542 10
Junctions and Slants set in new sewers							10,398 95
Junctions and Slants set in old sewers							478 17
Surplus transferred to Maintenance							4,343 89
TOTAL							$39,763 11

NUMBER OF HOUSE DRAINS PUT IN PLACE DURING THE YEAR 1889 UNDER SPECIAL ASSESSMENT.

Divisions.	Total Number of Drains.	Total Length in Feet.	Total Cost.	Average Cost per Drain.	Average Length of Drain in feet.	Average Cost per Foot.
West	3,740	103,937	$26,175 62	$7 00	27.08	$25.18
South.......	316	8,003	2,337 31	7 40	25.33	29.02
North.......	247	6,605	1,861 46	7 54	26.74	28.18
TOTAL...	4,303	118,545	$30,374 39	$7 06	27.55	$25.62

Making a total of 22.45 miles of 6-inch drains laid by contract and paid for by special assessment.

There was received from permits issued in the district of Lake View, $3,222.50; town of Lake, $1,267.00, and Hyde Park, $1,760.50, since annexation, and credited to the General Fund in those districts.

SEWERS AND CATCH-BASINS CLEANED WITHIN THE THREE DIVISIONS IN THE OLD CITY LIMITS, DURING THE YEAR 1889.

METHOD.	SOUTH DIVISION.		WEST DIVISION.		NORTH DIVISION.		TOTAL.		Average Cost per 100 Feet.
	Feet Cleaned.	Cost.	Feet Cleaned.	Cost.	Feet Cleaned.	Cost.	Feet Cleaned.	Cost.	
Flushing......	126,375	$1,775 88	114,975	$1,343 88	172,155	$2,363 56	413,505	$ 5,483 32	$1 32
Iron Scraper...	104,107	4,924 14	126,015	5,309 04	70,310	3,604 71	300,495	13,837 89	4 60
Wood Scraper.	61,885	1,919 00	236,165	7,295 13	74,831	2,316 18	372,881	11,530 26	3 09
TOTAL....	292,430	$8,619 02	477,155	$13,948 05	317,296	$8,284 40	1,086,881	$30,351 47	$2 81
Opening inlets to catch-basins, attending complaints, etc.								3,534 02	
							TOTAL.........	$34,385 49	
	No. of.	Cost.	No. of.	Cost.	No. of.	Cost.	No. of.	Cost.	Average Cost per Basin.
Catch-basins cleaned	3,095	$9,230 49	4,325	$12,976 95	1,349	$4,048 80	8,769	$26,256 24	$2 99
Cost of cleaning sewers and catch-basins.								$60,641 73	
Miscellaneous bills, repairs of tools, etc.								861 28	
TOTAL COST OF CLEANING SEWERS AND CATCH-BASINS.								$61,503 01	

Statement showing the value of the material and stock on hand; also the balance standing to the credit of the Sewerage Fund, January 1, 1890:

Wooden covers and lumber	$ 4,490 50
Iron covers	1,478 00
Sewer pipe	2,076 30
Brick	14 83
Sand	1 50
Cement	123 00
Stock, machinery, tools, etc.	5,500 00
Balance to credit of Sewerage Fund	18,472 70
Total	$32,156 83

It is impossible to give the cost of sewers constructed in the recently annexed districts, owing to methods under which many of them were built; property owners have been granted permits to construct sewers, furnishing the material for the same, and frequently employing their own engineers and inspectors. This method, resulting in incomplete records of the location of man-hole and house-drain connections, also the bottom elevation of the sewers so constructed, which, in the future, will be a great drawback to the efficiency of this Bureau. Property owners should not be permitted to construct sewers independent of this Department, as it tends to faulty construction and incomplete records.

Since annexation this Bureau has relaid 4,047 feet of sewers, at a cost of $8,200.00, in the district of Hyde Park. There are a number of streets in this district, the sewers of which will require reconstruction at an early date, owing to the use of worthless material and defective workmanship.

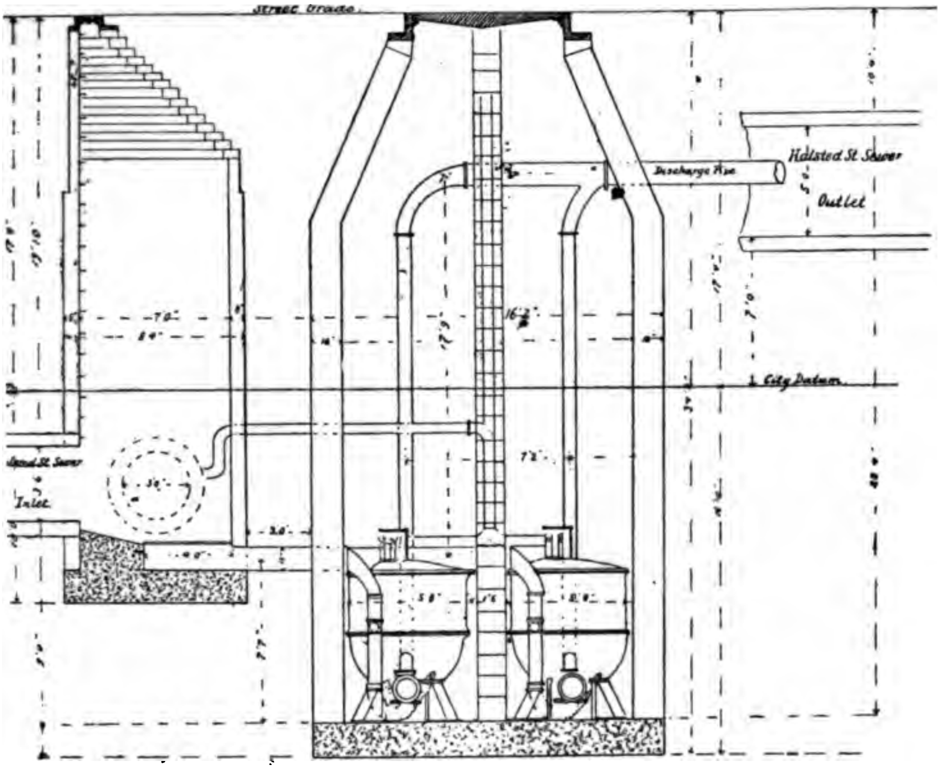
The system of recording the data of all sewer and house-drain work in the districts of Lake and Hyde Park have been imperfect and incomplete, which is a source of great annoyance to the public at large who seek information, and also adds to the embarrassment of this Department in the compilation of assessments and the transaction of all public business connected with these districts. In order to systematize the work, I am preparing atlases of these districts, drawn to a uniform scale of one hundred feet to an inch, wherein will be delineated all sewers when constructed, showing the location of man-holes and all junction measurements, also the location of all house-drains constructed under special assessments or private contracts. Grade atlases have been prepared whereon are noted the location and diameter of sewers constructed and the grades of same, as furnished by the engineer in charge, together with the street grades established by ordinance.

The rapid development of these districts require that prompt action be taken to fix permanent street grades. A corps of engineers are at work taking levels, and as rapidly as possible ordinances are being prepared for establishing grades on the most important thoroughfares.

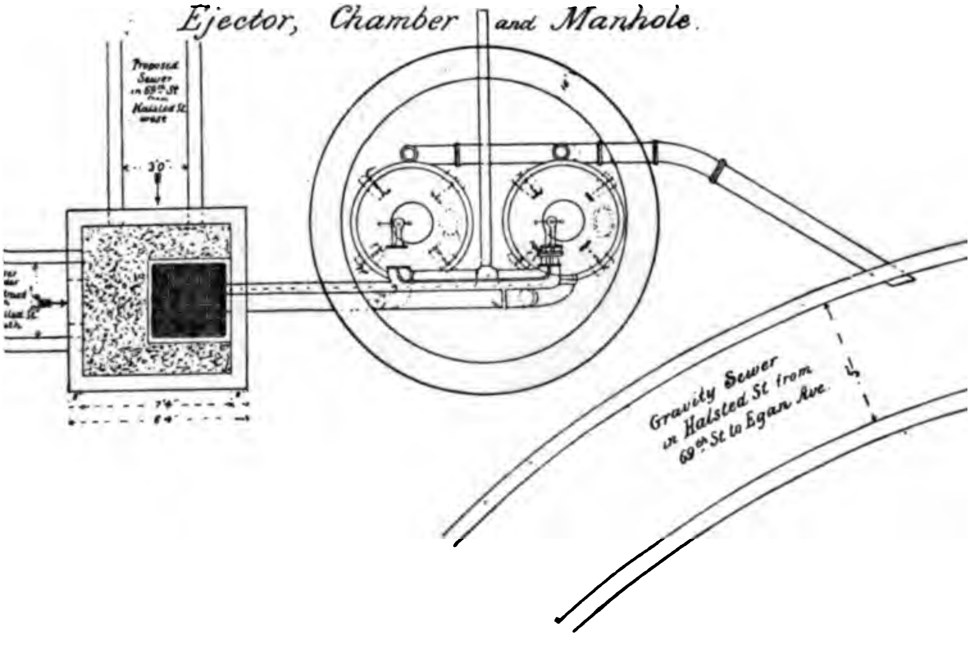
The method of a house-to-house canvass prevailed when estimates were ordered for house-drain assessments. In many instances several houses discharge their sewerage through one pipe, and owing to the absence of any record for said work, the canvasser accepts the statement of the owner or tenant, and the assessment is made out on very meager information. Frequently large tracts of land are omitted from assessments; newly paved streets are daily being opened to supply those omissions, which causes disaffection to the property owners who have complied with the ordinances requiring them to put in all underground improvements. It is very essential to the proper management of this Bureau that a complete record be kept of every detail that enters into the construction of sewers and house-drains. All new work is being platted and recorded as the work progresses, and employes are securing data of old work, and every effort is being made to restore the records as fully as possible.

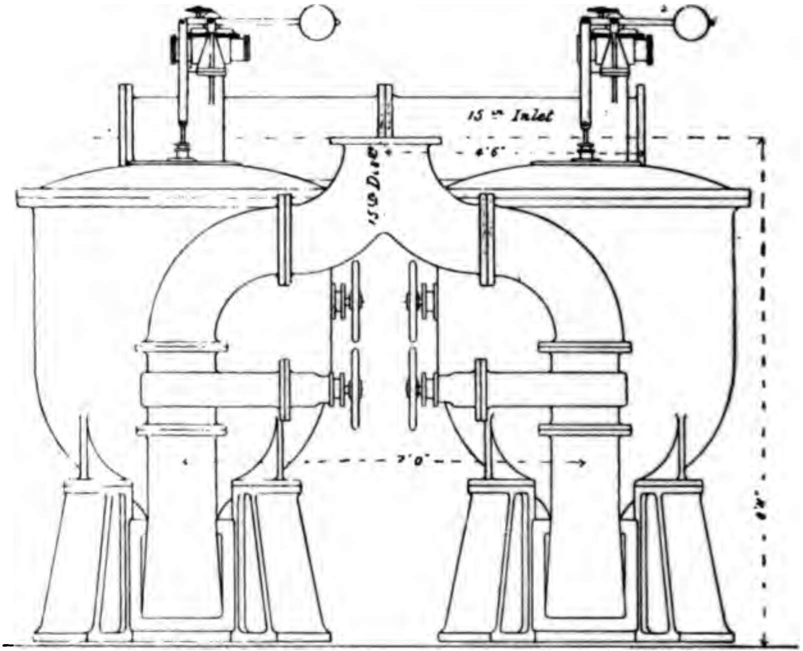
There has been a large main sewer built in South Halsted street during the year 1889, from Egan avenue south to Sixty-ninth street, which discharges by gravity into the stock yards slip at Egan avenue. It is seven feet in diameter at its outfall, and gradually diminishes in size to five feet at Sixty-ninth street.

There is under contract, and nearly completed, at the intersection of South Halsted and Sixty-ninth

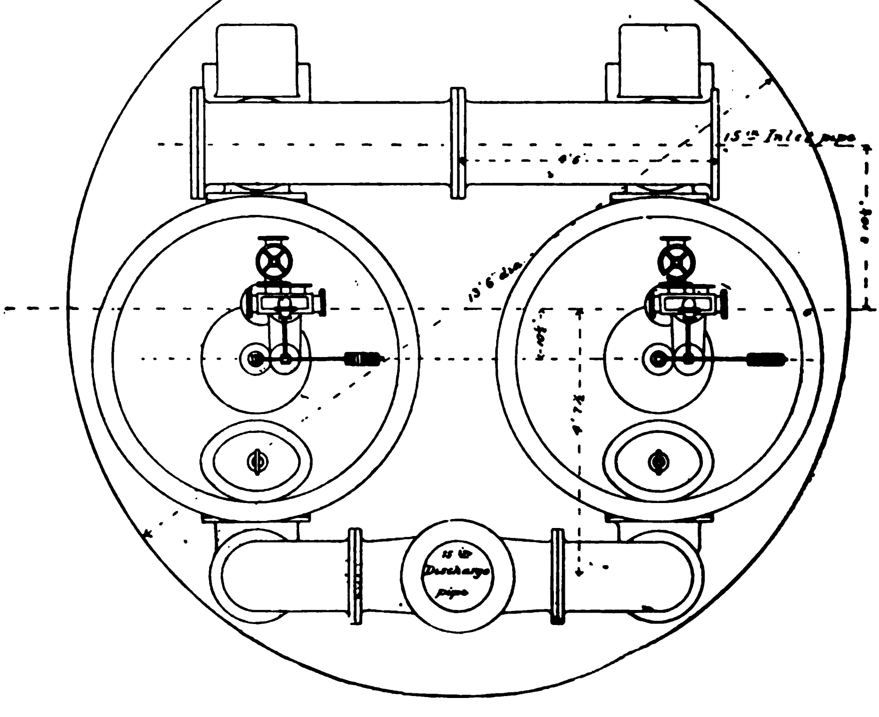


Ejector, Chamber and Manhole.


Proposed Sewer in 69th St from Halsted St west
3'0"
7'4"
8'4"
Gravity Sewer in Halsted St from 69th St to Egan Ave.



Arrangement of Two, 600 Gal. Shone Ejectors,
being placed at Intersection of 69th & Halsted Sts



streets, an air compressor station and two "Shones" ejectors, with a capacity of 600 gallons lifted fifteen feet per minute each, which is intended to raise the sewerage from a sewer now under contract to be built in South Halsted street, from Sixty-ninth street south to Eighty-fifth street, discharging it into the gravity sewer. This sewer is intended for house drainage only, and will be about fifteen feet deeper at Sixty-ninth street than the gravity sewer. It is to be three and one-half feet in diameter at Sixty-ninth street, gradually decreasing in size to two feet at Eighty-fifth street. This sewer is designed to take all the house drainage from the district lying between Seventieth street on the north, and Eighty-seventh street on the south, State street on the east and Ashland avenue on the west. Work will be commenced on this contract as soon as the ejectors can be got ready for operation, which will be about March 15 next. This work was all under contract before annexation.

The surface or storm water of the above district is as yet unprovided for. Speculators and owners of property lying in the tract bounded by Sixty-ninth street, Eighty-seventh street, Lake Michigan and the Pittsburgh, Fort Wayne and Chicago Ry., are asking for a system of sewers for this district, but as the elevation of the surface of this ground is only from four to six feet above low water in Lake Michigan, I see no way at present of sewering it except by the erection of costly pumping works, and discharging the sewerage into Lake Michigan in close proximity to the Hyde Park Water Works; but in view of the fact that the Drainage Commission will soon have their plans perfected defining their location of the proposed waterway from Lake Michigan westward to the Desplaines river, which will probably be through or near this district, I would recommend that no definite plan be decided upon until this location is made.

The continuation of the Armitage avenue main system has been extended during the past year as follows:

On Armitage avenue from Milwaukee avenue westward to California avenue.

On North avenue westward to Kedzie avenue.

On Augusta street, from the east line of Humboldt Park boulevard westward to Grand avenue; also southward on Kedzie avenue from Augusta street to Ohio street. The continuation of this sewer on Ohio street from Kedzie avenue westward to St. Louis avenue is under contract, and will be completed early next spring.

The Fullerton avenue main has been built during the year 1889, from Elston avenue westward to Western avenue.

All of the above mains should be extended during the coming year, as the territory west of California avenue and north of Kinzie street is rapidly building up, and is dependent upon these sewers for drainage.

In closing this report I desire to acknowledge my obligations for the uniform courtesy and support extended to me by his Honor the Mayor, the Commissioner of Public Works, and by the officers of the several Bureaus, in the discharge of the duties of my position; also to testify to the efficient and faithful manner in which all employes of this Bureau have discharged their various duties.

Respectfully submitted,

O. H. CHENEY,

Superintendent of Sewers.

REPORT

OF THE

Bureau of Streets

CITY OF CHICAGO.

BUREAU OF STREETS.

CHICAGO, December 31, 1889.

HON. W. H. PURDY,
Commissioner of Public Works.

DEAR SIR:—I have the honor to submit herewith the Fourteenth Annual Report of the Bureau of Streets, for the year ending December 31, 1889.

It embraces in detail a review of the work accomplished during the year under the supervision of this Bureau, including all the streets improved in the territory annexed July 15, 1889, with the amount expended; also, street railway extensions made during the year by the different street railway companies.

The amount paid contractors for street improvements by special assessment was	$2,747,436 85
For sidewalks built by the Bureau	43,910 66
For cleaning and sweeping improved streets	183,995 27
For cleaning macadamized roadways	29,252 50
For repaving and repairing improved streets	124,842 90
For grading, ditching, building and repairing aprons, culverts, crossings, etc., on unimproved streets	139,775 98
For constructing and operating gasoline lamps, three months	38,125 05
For city parks	8,438 61
For City Hall operation and maintenance	91,995 35
For street lamp repairs	20,669 41
Total	$3,428,442 58

The necessity for a cheap and convenient place to dump ashes, street cleanings and rubbish generally, for the accommodation of the city and business men having refuse to dispose of, is becoming greater every year. Hundreds of people inquire at this office for places to dump cinders, ashes, rubbish and other material not injurious but valuable filling for low places; this Bureau, however, is unable to give them satisfactory advice. Unless dumping places are provided within a reasonable distance from the business center, the cost of cleaning the streets will be materially increased. The material referred to might be dumped into the lake, under proper restrictions, without proving injurious to the health of the community, and the land thus gained would be of great value to the city.

The small amount of money allowed the Bureau for the maintenance of paved and macadamized roadways is not sufficient to keep them in good condition. Their total destruction is accelerated by failure to properly repave any break or worn place discovered in the roadway.

Dearborn avenue was paved with sheet asphalt in 1884 by the Barber Asphalt Paving Company, under a five (5) years guarantee, which expired August 13, 1889. During this period they had from time to time made repairs as needed, but at the expiration of the guaranteed term, a question was raised by this Department as to the unevenness in parts of the street, and incipient holes, or what would apparently soon be holes, in other parts. The company urged that, while some parts of the surface were not so good as the rest, yet as a whole, considering the extraordinarily large amount of traffic on the street, it was in reasonable good condition.

Fearing that the cost of repairs to the city would be excessive, this Department still declined to refund the retainer, whereupon the Paving Company submitted the following proposition, which was accepted:

CHICAGO, August 7, 1889.

Hon. D. C. CREGIER, Mayor, Hon. W. H. PURDY, Commissioner of Public Works, Hon. L. E. McGANN, Superintendent of Streets, City of Chicago.

SIRS:—Referring to our conversation this morning, we hereby propose to relay the asphalt wearing surface of Dearborn avenue, between Chicago and North avenues, immediately; on condition that upon completion of this relaying you will pay us the retainer now held by you on that pavement, and all our liability under our contract of March 17, 1884, shall then cease and determine. Our proposition is further conditioned on the relaying of the gas main, which is now leaking very seriously. We wish distinctly to state that we are under no legal liability thus to relay the entire surface, which was accepted by the city of Chicago on its completion five years ago, and has ever since been maintained by us in good order and repair at our own expense. But we do this work in order to comply with your wishes, and to remove all possible criticism as to the character of our work.

Awaiting your reply before beginning the work, we remain,

Very respectfully,

F. V. GREENE,

Vice-President.

During the month of August the entire wearing surface was stripped from the concrete base, which was found to be in good condition; and a new wearing surface of two and one-half inches of asphalt was laid in its place. This work was carefully done, is now in good condition, and gives every appearance of being as durable as it is satisfactory to the residents and property owners.

Surface drainage has become an important and expensive feature of the work o this Bureau, on account of the rapid growth of the city extending into territory where no sewers exist. It is absolutely necessary that immediate steps be taken to relieve the ditches now overflowing with stagnant water in the territory recently annexed to the city, and an appropriation should be made for that purpose.

The large number of persons killed or injured at streets crossing railroad tracks has called for greater caution on the part of the railroad companies in the city. Upon orders of the Council and Commissioner of Public Works, they have erected 236 safety gates up to date, and many more are under contract to be erected, with a view to placing such gates at all streets crossing railroad tracks in the city, as soon as possible. Many of these gates are now being operated day and night, where found necessary.

A new feature of intermural railway service has been introduced during the past year.

The Lake Street Elevated Railroad Company began constructing its tracks September 21, 1889, on Lake street, at the intersection of Canal street, working westward. They propose to complete their system at an early day ; also the Chicago and South Side RapidTransit Railroad Company, running south in alley between State and Wabash avenue, began laying their foundations.

Cable car tracks have been constructed on Milwaukee avenue, from Kinzie street to Armitage avenue, to replace horse-car tracks.

Cable car tracks have also been constructed on Desplaines street, from Kinzie to Washington streets, thence through the Washington street tunnel to Fifth avenue.

The West Chicago Street Railroad Company proposes to form a loop from the intersection of Fifth avenue and Washington street to Madison street, thence east to La Salle street, thence north to Randolph, thence west to Fifth avenue, thence south to Washington street, and continuing west on Washington street through the tunnel to the West Division of the city.

The cable tracks on Madison street, from Jefferson street to West Fortieth street, have practically been completed.

Considerable improvements have been made in the street lighting service. Six hundred and fifty-eight gas lamps have been discontinued by the erection of

294 electric lights. Additional electric wires are being extended and lamps erected as rapidly as the city's means will permit, under the supervision of Prof. John P. Barrett, City Electrician.

On November 7, 1889, a contract was entered into with the several gas companies in the city (in addition to furnishing gas), to repair and clean the gas lamps. I am pleased to report that the result has been satisfactory, and that this very important branch of the city's service has been greatly improved.

From January 1, 1889, to October 1, 1889, 5,474 oil lamps were furnished and lighted by the Wheeler Reflector Company, under contract at $18.50 per lamp annually.

The light furnished did not give satisfaction. Upon order of the City Council, the city assumed control of these lamps on October 1, and changed them from kerosene to gasoline, and the result has been a much better light at less cost, the average cost being about $12.45 per lamp annually.

The annexation of Hyde Park, Lake, Lake View, Jefferson and a portion of Cicero has greatly increased the work of this Bureau, extending the number of miles of streets in Chicago from 756.57 to 2,047.28, divided as follows:

	Improved.	Unimproved.
City of Chicago	381.89 miles.	374.68 miles.
Hyde Park	114.67 miles.	406.43 miles.
Lake	37.36 miles.	293.20 miles.
Lake View	44.23 miles.	83.47 miles.
Jefferson		232.96 miles.
Cicero		78.39 miles.
Total	578.15 miles.	1,469.13 miles

The improved streets in Lake View are in very good condition. The unimproved streets in Lake View are dry and free from stagnant pools, owing to the nature of the ground, which is sand and gravel. The same may be said of the northern portion of Hyde Park, while the southern portion thereof is very low ground, and not provided with any system of drainage. The improved and unimproved streets of the town of Lake are in a bad condition (except those in the vicinity of Englewood), and will require a large expenditure of money to place and keep them in a creditable condition.

Jefferson roadways were in a bad condition, but have been repaired with gravel, under contracts awarded by the Board of Trustees, just prior to annexation. The streets in Cicero are in very bad condition, no apparent effort having been made to keep them graded, or in repair, or the ditches clean.

STREETS IMPROVED,

NAME OF STREET.	FROM	TO	COMMENCED.
Alley, Block 34 Wolcott addition	North line of Superior	South line of Chicago avenue	May 20, 1889
Alley. Block 18 Wolcott addition	Dearborn	Ontario	May 11, 1889
Alley	Clark to Dearborn	Division to Goethe	May 2, 1889
Alley, Block 5 Kinzie addition	Rush	Cass	May 2, 1889
East and west alley, Block 10	Stone's sub. of	Astor's addition	May 20, 1889
East and west alley, Block 11	Wolcott addition	La Salle to Clark	May 17, 1889
Alley, Block 23 Wolcott addition	South line of Erie	Running South and East	May 14, 1889
E. and W. alley, Block 15 Kinzie add.	Indiana to Illinois	State to Cass	May 18, 1889
Alley, Block 54 Kinzie addition	West lot line Lill Brewing Co.	Sub. to East line of lot 32	May 25, 1889
Alley, Block 30 Wolcott addition	La Salle to Clark	Superior to Huron	May 23, 1889
Alley, Block 4 O. T.	La Salle to Wells	Kinzie to Water	May 17, 1889
Alley, Block 27 Wolcott addition	Clark	La Salle	May 16, 1889
Alley	Moha'k to Cleveland	Wisconsin to Garfield	Sept. 2, 1889
Alley	Oak to Maple	La Salle to Clark	Oct. 11, 1889
Alley	Illinois to Indiana	Clark to Dearborn	Oct. 15, 1889
Alley	Chicago avenue to Superior	Market to Franklin	Nov. 19, 1889
Alley, Block 25 Wolcott addition	Huron	Erie	Nov. 6, 1889
Ashland avenue	Sulzer	Lawrence avenue	Oct. 14, 1889
Alaska	Larrabee	Town	Sept. 14, 1889
Ashland avenue	Fullerton avenue	Belmont avenue	Oct. 5, 1889
Burling	Willow	Centre	May 9, 1889
Bissell	Dayton	Garfield avenue	July 1, 1889
Bissell	Dayton	Garfield avenue	
Burling	Garfield avenue	Centre	Oct. 21, 1889
Belmont avenue	Lincoln avenue	Western avenue	July 10, 1889
Berteau avenue	Ashland avenue	East Ravenswood park	July 16, 1889
Barry avenue	Clark	Evanston avenue	June 20, 1889
Berteau avenue	Ashland avenue	East Ravenswood park	Aug. 3, 1889
Centre	Sedgwick	Halsted	May 7, 1889
Chestnut	Wells	Market	June 1, 1889
Chestnut place	Chestnut	Delaware place	June 9, 1889
Chicago avenue	Pine	600 feet east	Oct. 29, 1889
Chestnut	Market	West terminus	Oct. 19, 1889
Commercial avenue	Berteau avenue	Webster avenue	June 17, 1889
Clark	Lawrence avenue	North Town line	June 20, 1889
Cosgrove avenue	Ashland avenue	East Ravenswood park	July 12, 1889
Centre	Southport avenue	Evanston avenue	
Commercial avenue	Berteau avenue	Webster avenue	Aug. 1, 1889
Cosgrove avenue	Ashland avenue	East Ravenswood park	July 31, 1889
Dayton	North avenue	Willow	June 15, 1889

NORTH DIVISION, 1889.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
May 20, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	294.13	278.64
May 14, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	712.47	420.00
May 8, 1889	Olaf Vider...............	W.C.C. Cedar blocks	1,374.94	624.97
June 6, 1889	W. F. Hair.........	W.C.C. Cedar blocks	581.73	296.08
May 21, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	460.39	240.90
May 17, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	614.64	319.75
May 16, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	301.13	188.00
May 20, 1889	Western Paving & Supply Co	W. C. Cedar blocks.	593.92	301.14
June 4, 1889	W. F. Hair...............	W. C. Cedar blocks.	903.71	524.94
May 31, 1889	W. F. Hair...............	W.C.G. Cedar blocks	840.13	518.00
May 18, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	194.43	162.01
May 17, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	513.93	306.55
Sept. 10, 1889	Olaf Vider...............	W.C.C. Cedar blocks	1,707.97	1,191.81
Oct. 15, 1889	Olaf Vider...............	W C. Cedar blocks.	901.75	405.79
Nov. 30, 1889	Olaf Vider...............	W. C. Cedar blocks.	600.85	490.00
Nov. 30, 1889	Western Paving & Supply Co	W. C. Cedar blocks.	613.28	326.60
Nov. 20, 1889	McAdam & Amberg.......	W.C.C. Cedar blocks	622.58	476.00
Oct. 23, 1889	J. B. Smith & Co..........	W. C. C. Macadam..	....	2,656.70
Sept. 30, 1889	McAdam & Amberg.......	W.C.F. Cedar blocks	1,210.15	453.81
Oct. 29, 1889	J. B. Smith & Co..........	W.C.G. Cedar blocks	23,126.30	5,244.50
June 20, 1889	R. F. Conway............	W.C.G. Cedar blocks	5,740.38	1,519.51
July 27, 1889	McAdam & Amberg.......	C. F. and cutting...	....	2,173.63
....	McAdam & Amberg.......	Cedar blocks	7,246.55	2,173.63
Nov. 30, 1889	Olaf Vider...............	C. Cedar blocks.....	1,995.24	598.57
Oct. 1889	J. B. Smith & Co....	Cedar blocks.......	18,355.80	5,258.80
Aug. 12, 1889	J. B. Smith & Co..........	C. G. Macadam	....	1,210.00
July 20, 1889	J. B. Smith & Co....... ...	Cedar blocks.......	3,937.00	1,185.00
Aug. 5, 1889	J. B. Smith & Co...	Granite top dressing.	....	1,210 00
Aug. 19, 1889	McAdam & Amberg.......	C. C. Cedar blocks..	8,440.77	2,532.23
June 19, 1889	Olaf Vider...............	Cedar blocks.......	2,996.68	706.76
June 11, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	496.27	242.74
Nov. 9, 1889	Olaf Vider...	C. G. Cedar blocks.	3,365.06	602.10
Oct. 22, 1889	Olaf Vider...	C. Cedar blocks	934.94	221.43
Aug. 1, 1889	J. B. Smith & Co...	W. C. G. Macadam..	....	5,596.10
Nov. 6, 1889	LaBounty & Netterstrom...	W. C. G. Macadam..	....	10,692.00
Aug. 10, 1889	J. B. Smith & Co.........	W. C. G. Macadam..	....	1,047.00
....	LaBounty & Netterstrom...	W. C. G. Macadam..	....	1,246.00
Nov. 18, 1889	J. B. Smith & Co...... ...	Granite top dressing.	....	....
July 31, 1889	J. B. Smith & Co.........	Granite top dressing.	....	....
July 25, 1889	J. B. Smith & Co.........	C.W.F. Cedar blocks	4,051.71	1,012.93

STREETS IMPROVED, NORTH

NAME OF STREET.	FROM	TO	COMMENCED.
Dayton	Willow	Belden avenue	....
Diversey avenue	Halsted	Clybourn avenue	June 10, 1889
Deming court	Clark	Orchard	June 10, 1889
Dewey court	Clark	Halsted	June 18, 1889
Dakin	Evanston avenue	Sheffield avenue	Nov. 7, 1889
Elm	Wells	Sedgwick	May 10, 1889
Eugenie	Sedgwick	Larrabee	Aug. 1, 1889
Franklin	North avenue	Menomonee	May 23, 1889
Fremont	Willow	Centre	May 9, 1889
Fremont	Centre	Belden avenue	May 9, 1889
Grant	Clark	La Salle avenue	June 19, 1889
Garfield avenue	Halsted	Racine avenue	Oct. 19, 1889
Graceland avenue	Halsted	Alexander	June 20, 1889
Grove Lane avenue	Wrightwood	North terminus	....
Goodwin avenue	Argyle	North Fifty-ninth	Oct. 20, 1889
Hobbie	Crosby	Larrabee	June 26, 1889
Howe	Willow	Garfield avenue	Aug. 9, 1889
Halsted	Clark	Evanston avenue	July 5, 1889
Larrabee	North avenue	Webster avenue	July 22, 1889
Locust	Wells	Market	Sept. 9, 1889
Lawrence avenue	Ashland avenue	Robey	Aug. 10, 1889
Lawrence avenue	Ashland avenue	Robey	....
Leland avenue	Clark	Robey	Aug. 2, 1889
Leland avenue	Clark	Robey	Aug. 18, 1889
Maple avenue	150 feet west of Dearborn	Western terminus	June 21, 1889
Michigan avenue	Clark	Wells	June 17, 1889
Menomonee avenue	Sedgwick	Larrabee	Aug. 1, 1889
Orchard	Clybourn avenue	North avenue	Sept. 8, 1889
Perry avenue	Clybourn avenue	Fullerton avenue	Sept. 5, 1889
Pearson	Wells	Franklin	Oct. 24, 1889
Perry avenue	Sulzer	Wilson avenue	Aug. 6, 1889
Paulina	Berteau avenue	Webster avenue	June 20, 1889
Paulina	Berteau avenue	Webster avenue	Aug. 2, 1889
Perry avenue	Sulzer avenue	Wilson avenue	Oct. 12, 1889
Palmer	Sulzer avenue	Lawrence avenue	Aug. 29, 1889
Rush	Chicago avenue	State	May 27, 1889
Ravenswood (W) Park	Sulzer	Lawrence avenue	Oct. 31, 1889
Ravenswood (W) Park	Sulzer	Lawrence avenue	Nov. 18, 1889
Ravenswood (E) Park	Sulzer	Lawrence avenue	Aug. 7, 1889
Robey	Sulzer	Lawrence avenue	Sept. 7, 1889

DIVISION, 1889—Continued.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
Dec. 1, 1889	Olaf Vider	C. C. F. Cedar blocks	11,418.87	3,425.66
Aug. 26, 1889	J. B. Smith & Co	W.C.G. Cedar blocks	32,695.80	7,842.00
July 10, 1889	J. B. Smith & Co	W.C.G. Cedar blocks	3,587.90	1,113.90
July 10, 1889	J. B. Smith & Co	W.C.G. Cedar blocks	4,043.00	1,155.40
Nov. 12, 1889	J. B. Smith & Co	C. F. Macadam	....	1,154.30
June 12, 1889	Western Paving & Supply Co	C. F. Cedar blocks	4,460.14	1,060.25
Aug. 30, 1889	Olaf Vider	C. C. Cedar blocks	4,470.71	1,117.68
June 19, 1889	Western Paving & Supply Co	C. F. Cedar blocks	4,969.08	1,315.34
July 16, 1889	J. B. Smith & Co	C. F. Cedar blocks	5,245 87	1,573.76
July 16, 1889	J. B. Smith & Co	C. C. Cedar blocks	6,547.31	1,964.19
July 27, 1889	Western Paving & Supply Co	C. C. Cedar blocks	901.50	338.91
Nov. 4, 1889	McAdam & Amberg	C. C. Cedar blocks	9,339.02	2,801.70
Sept. 19, 1889	Jas. Lyman & Co	C. C. Macadam	....	1,666.80
....	LaBounty & Netterstrom	Filling	....	552.88
Oct. 30, 1889	J. B. Smith & Co	C. F. Macadam	....	380.50
June 29, 1889	Western Paving & Supply Co	C. F. Cedar blocks	1,692.77	407.35
Aug. 19, 1889	McAdam & Amberg	C. C. Cedar blocks	7,076.09	2,122.83
Aug. 15, 1889	J. B. Smith & Co	C. G. Cedar blocks	12,118.00	4,533.80
Aug. 14, 1889	Olaf Vider	Cedar blocks	10,128.77	4,117.39
Sept. 19, 1889	Olaf Vider	Cedar blocks	3,017.21	710.87
Sept. 3, 1889	J. B. Smith & Co	W. C. C. Macadam	....	2,586.00
....	J. B. Smith & Co	Granite top dressing	....	....
Nov. 6, 1889	J. B. Smith & Co	Granite top dressing	....	2,569.10
Nov. 21, 1889	J. B. Smith & Co	Granite top dressing	....	....
July 1, 1889	Olaf Vider	C. C. Cedar blocks	2.121.78	491.40
Aug. 30, 1889	J. B. Smith & Co	Macadam founda'n cedar blks	3,776.89	736.39
Sept. 5, 1889	Olaf Vider	C. F. Cedar blocks	3,866.60	1,159.98
Oct. 9, 1889	W. F. Hair	C.W.F. Cedar blocks	2,591.55	732.00
Oct. 9, 1889	Western Paving & Supply Co	C. F. Cedar blocks	3,050.88	915.26
Nov. 1, 1889	R. F. Conway	C. Cedar blocks	1,435.29	339.94
Aug. 15, 1889	J. B. Smith & Co	W. C. Macadam	....	1,247.20
Aug. 8, 1889	J. B. Smith & Co	W. C. Macadam	....	5,594.50
Nov. 20, 1889	J. B. Smith & Co	Granite top dressing	....	....
Oct. 12, 1889	J. B. Smith & Co	Granite top dressing	....	....
Sept 26, 1889	J. B. Smith & Co	Granite top dressing	....	2,580.50
June 12, 1889	Western Paving & Supply Co	C. Cedar blocks	9,349.67	2.460.44
Nov. 11, 1889	J. B. Smith & Co	W. C. G. Macadam	....	2,579.00
Nov. 18, 1889	J. B. Smith & Co	Granite top dressing	....	....
Aug. 21, 1889	J. B. Smith & Co	W. C. G. Macadam	....	2,579.00
Sept. 26, 1889	J. B. Smith & Co	W. C. G. Macadam	....	2,581.20

STREETS IMPROVED, NORTH

NAME OF STREET.	FROM	TO	COMMENCED.
Robey	Sulzer	Lawrence avenue	Sept. 7, 1889
Sedgwick	Centre	Eugenie	May 10, 1889
Sedgwick	North avenue	Eugenie	July 16, 1889
Sullivan	Cleveland avenue	Sedgwick	July 20, 1889
Superior	Wells	Franklin	Aug. 16, 1889
Sedgwick court	Elm	Division	Nov. 11, 1889
Sheffield avenue	Fullerton avenue	Clark	Aug. 5, 1889
Sheffield avenue	Evanston avenue	North Fifty-ninth	June 1, 1889
Sherman place	Clark	Orchard	June 10, 1889
Sunnyside avenue	Clark	Robey	July 6, 1889
Sunnyside avenue	Clark	Robey	Aug. 8, 1889
Sulzer	Clark	Halsted	Nov. 21, 1889
Sulzer	Clark	Robey	Sept. 6, 1889
Sulzer	Clark	Robey	Oct. 15, 1889
Townsend	Chicago avenue	Division	July 23, 1889
Town	Blackhawk	North avenue	May 1, 1889
Webster avenue	Halsted	Clybourn avenue	May 1, 1889
Webster avenue	Dominick	Clybourn avenue	Aug. 14, 1889
Walton place	Clark	Dearborn	Aug. 2, 1889
Washington place	Clark	Dearborn	July 15, 1889
Wieland place	Schiller	North avenue	July 25, 1889
Wisconsin	Sedgwick	Larrabee	Aug. 5, 1889
Wendell	Wells	Sedgwick	Oct. 4, 1889
Wilson	Clark	Robey	June 13, 1889
Wilson	Clark	Robey	Sept. 18, 1889
Wilson	Clark	Halsted	Oct. 8, 1889
Wolcott	Sulzer	Lawrence avenue	Oct. 21, 1889
Wolcott	Sulzer	Lawrence avenue	Nov. 4, 1889
Winthrop	Argyle	North Fifty-ninth	Oct. 23, 1889
Wilton avenue	Grace	Nellie avenue	June 1889
York place*	Clark	Evanston avenue	....

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* Private contract.

DIVISION, 1889—CONTINUED.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
Sept. 26, 1889	J. B. Smith & Co	Granite top dressing.	....	....
June 12, 1889	J. B. Smith & Co	Cedar blocks	4,912.42	2,009.63
July 20, 1889	Olaf Vider	Cedar blocks	1,846.74	755.49
Sept. 10, 1889	Olaf Vider	C. C. Cedar blocks	1,063.58	598.26
Aug. 28, 1889	W. F. Hair	C.W.C. Cedar blocks	1,770.11	345.72
Dec. 19, 1889	Olaf Vider	C. F. Cedar blocks	700.39	286.52
Sept. 28, 1889	J. B. Smith & Co	W.C. Cedar blocks	20,059.00	6,724.50
Nov. 19, 1889	J. B. Smith & Co	W.C. C. F. Macadam	....	5,351.00
July 10, 1889	J. B. Smith & Co	W. C. Cedar blocks.	2,347.00	661.80
Oct. 28, 1889	J. B. Smith & Co	W. C. C. F. Macadam	....	2,669.80
Nov. 21, 1889	J. B. Smith & Co	Granite top dressing.	....	2,669.80
Nov. 23, 1889	J. B. Smith & Co	Macadam	.. ..	3,918.80
Oct. 17, 1889	J. B. Smith & Co	W. C. C. Macadam	....	3,306.50
Nov. 21, 1889	J. B. Smith & Co	Granite top dressing.	....	....
Aug. 2, 1389	J. D. & D. S. McBean	Cedar blocks	11,047.24	2,602.75
Sept. 30, 1889	McAdam & Amberg	C.W.F. Cedar blocks	1,243.81	621.90
May 16, 1889	R. F. Conway	C. C. Cedar blocks	16,317.78	4,306.46
Sept. 30, 1889	McAdam & Amberg	C. F. Cedar blocks	2,100 05	497.38
Sept. 10, 1889	Olaf Vider	C. C. Cedar blocks	1,101.50	319.82
Aug. 15, 1889	Olaf Vider	C. C. Cedar blocks	1,100.07	319.56
Aug. 30, 1889	Olaf Vider	C. C. Cedar blocks	3,514.65	1,211.95
Aug. 14, 1889	Olaf Vider	C. Cedar blocks	4.241.88	1,122.85
Oct. 12, 1889	Olaf Vider	C.W.C. Cedar blocks	4,573.54	1,073.60
Sept. 7, 1889	J. B. Smith & Co	W. C. C. Macadam	....	2,660.40
Nov. 13, 1889	J. B. Smith & Co	Granite top dressing.	....	....
Nov. 18, 1889	J. B. Smith & Co	W. C. C. Macadam	....	5,213.00
Oct. 31, 1889	J. B. Smith & Co	W. C. C. Macadam	....	2,579.80
Nov. 13, 1889	J. B. Smith & Co	Granite top dressing.	....	....
Nov. 2, 1889	LaBounty & Netterstrom	C. F. Macadam	....	373.00
July 1889	Jas. Lyman & Co	C. C. Macadam	....	705.00
....	LaBounty & Netterstrom	W.C.G. Cedar blocks	1,848.00	554.70

Lineal feet paving	170,010.72 feet, or	32.19 miles.
On unpaved streets, curbing	2,726.51 feet, or	0.51 miles.
GRAND TOTAL	172,737.23 feet, or	32.70 miles.

STREETS IMPROVED,

NAME OF STREET.	FROM	TO	COMMENCED.
Alley	Michigan ave. to Wabash ave.	Thirty fourth to Thirty-fifth	May 1, 1889
Alley	Michigan ave. to Wabash ave.	Twenty-fourth to Twenty-fifth	May 2, 1889
Alley	Indiana ave. to Prairie ave.	Thirtieth to Thirty-first	May 17, 1889
Alley, Block 40 School Section	North line of Quincy	Terminus	July 15, 1889
Alley, Block 95 School Section	North line of Monroe	S. line E. & W. alley rear 5th av	July 11, 1889
Alley	Madison to Monroe	Fifth avenue to Market	May 8, 1889
Alley	State to Wabash ave.	Jackson to Van Buren	May 2, 1889
Alley	State to Wabash ave.	Adams S. line E. and W. alley	Aug. 19, 1889
Alley	Wabash ave. to Michigan ave	Couch place to State	Aug. 14, 1889
Alley	Vincennes avenue	125 ft. E. of E. line Stanton av	
Alley	Forest ave. to Calumet ave.	Thirty-first to Thirty-second	Dec. 9, 1889
Alley	Prairie ave. to Calumet ave.	Twenty-sixth to Twenty-ninth	Sept. 13, 1889
Alley	Prairie ave. to Indiana ave.	Thirty second to Thirty-third	Sept. 2, 1889
Alley	Wabash ave. to Michigan ave.	Thirty-third to Thirty-fourth	Nov. 20, 1889
Alley	So. Park ave. to Vernon ave.	Thirty-third to Thirty-fourth	Nov. 16, 1889
Alley	Forest ave. to Calumet ave.	Thirty-second to Thirty-third	Dec. 12, 1889
Alley	Michigan ave. to Wabash ave.	Eighteenth to Twentieth	Dec. 3, 1889
Alley*	Woodlawn avenue	Lake avenue	April 1, 1889
Archer avenue	Halsted	Chicago river	July 10, 1889
Ashland	Archer avenue	Egan avenue	Aug. 1888
Aldine	Egan avenue	Northern terminus	Nov. 1, 1889
Butterfield	Twenty-sixth	Thirtieth	
Butterfield	Thirtieth	Thirty ninth	May 15, 1889
Berkeley*	Bowen	Forty-second	June 1, 1889
Berkeley*	Forty-fourth	Forty-fifth	Mar. 20, 1889
Central avenue	Water	Randolph	May 9, 1889
Congress	Franklin	Market	Aug. 14, 1889
Clark	Polk	Viaduct	June 22, 1889
Champlain	Forty-second	Forty-sixth	Aug. 21, 1889
Calumet avenue	Sixty-seventh	Seventy-first	May 15, 1889
Deering	Thirty-first	Archer avenue	July 15, 1889
Deering	Archer avenue	River	Oct. 1, 1889
Dearborn	Twenty-seventh	Thirty-third	Oct. 28, 1889
Drexel*	Sixty-fifth	Sixty-seventh	Sept. 19, 1889
Edgerton*	Sixtieth	Sixty-first	June 25, 1889
Edwards	Railroad avenue	Eighty-second	Sept. 25, 1889
Eighty-second	Edwards	Commercial	Sept. 25, 1889
Evans avenue	Forty-fourth	Forty-sixth	Aug. 1, 1889
Evans avenue	Forty-sixth	Forty-seventh	July 8, 1889
Ellis avenue*	Sixty-fifth	Sixty-seventh	Aug. 15, 1889
Emerald avenue	Twenty-sixth	Twenty-ninth	Sept. 26, 1889
Eda	State	Indiana avenue	Oct. 5, 1889
Emerald avenue	Twenty-ninth	Thirty-first	Oct. 10, 1889
Fifth avenue	Madison	Van Buren	Oct. 22, 1888
Fourteenth	Wabash avenue	Clark	June 22, 1888
Fifth avenue	Thirty-first	Thirty-third	June 8, 1889
Franklin	Lake	Madison	Oct. 12, 1888
Fourth avenue	Harrison	Twelfth	July 26, 1889
Fourth avenue	Jackson	Harrison	Oct 28, 1889

SOUTH DIVISION, 1889.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
May 6, 1889	McAdam & Amberg	W.C.C. Cedar blocks	1,332.20	601.00
May 18, 1889	J. B. Smith & Co.	W.C.C. Cedar blocks	1,583.63	850.00
May 25, 1889	W. F. Hair	W.C.C. Cedar blocks	695.78	387.50
July 23, 1889	McAdam & Amberg	G. Granite blocks	277.60	181.76
July 19, 1889	McAdam & Amberg	G. Granite blocks	555.68	277.84
May 28, 1889	James Conlan	C. F. Granite blocks	1,275.18	648.50
May 18, 1889	James Conlan	C. G. Granite blocks	792.00	400.00
Aug. 24, 1889	R. F. Conway	C. Granite blocks	176.94	113.75
Aug. 27, 1889	R. F. Conway	G. Granite blocks	447.42	203.37
	J. B. Smith & Co.	C. C. Cedar blocks	450.00	253.10
Dec. 21, 1889	R. F. Conway	C. C. Cedar blocks	970.69	598.37
Sept. 20, 1889	J. G & D. S. McBean	C. C. Cedar blocks	2,627.96	1,264.26
Sept. 10, 1889	W. F. Hair	C. C. Cedar blocks	875.31	586.58
Dec. 2, 1889	Western Paving & Supply Co	C. Cedar blocks	1,230.54	567.90
Dec. 16, 1889	R. F. Conway	C. Cedar blocks	2,312.20	1,156.00
Dec. 16, 1889	Olaf Vider	C. C. Cedar blocks	952.10	612.00
Dec. 13, 1889	McAdam & Amberg	C. C. Cedar blocks	2,104.01	812.70
June 1, 1889	**Eggleston, Mallette & Brownell**	Macadam		1,435.00
Sept. 9, 1889	R. F. Conway	C.W.F. Cedar blocks	21,160.26	5,890.57
Aug. 2, 1889	A. J. McBean & Co.	C. F. Cedar blocks	15,113.20	5,231.49
Dec. 2, 1889	J. G. & D. S. McBean	C. Cedar blocks	2,120.54	636.16
June 16, 1889	J. B. Smith & Co.	C. F. Cedar blocks	9,350.48	2,214 58
June 17, 1889	A. J. McBean & Co.	C. F. Cedar blocks	4,666.77	812.00
Aug. 1, 1889	Dolese & Shepard	Macadam		608.00
June 20, 1889	Dolese & Shepard	Macadam		664.00
June 19, 1889	W. F. Hair	C. Granite blocks	3,128.46	820.41
Sept. 10, 1889	R. F. Conway	C. F. Cedar blocks	782.60	195.65
Aug. 30, 1889	C. Gaffney	Granite blocks	4,559.45	1,302.70
Sept. 30, 1889	**Eggleston, Mallette & Brownell**	Macadam		2,888.00
Dec. 8, 1889	Dolese & Shepard	Macadam		3,816.25
Nov. 8, 1889	R. F. Conway	C.W.F. Cedar blocks	6,481.72	1,535.14
Dec. 16, 1889	R. F. Conway	C. F. Cedar blocks	6,226.34	1,474.60
Nov. 22, 1889	J. G. & D. S. McBean	C. F. Cedar blocks	14,946.41	3,539.93
Dec. 15, 1889	Dolese & Shepard	Macadam		1,284.00
Aug. 15, 1889	Dolese & Shepard	Macadam		808.00
Nov. 10, 1889	Dolese & Shepard	Macadam		
Nov. 10, 1889	Dolese & Shepard	Macadam		2,798.00
Sept. 4, 1889	Dolese & Shepard	Macadam		1,325.00
Sept. 7, 1889	C. A. Iglehart	Macadam		658.00
Dec. 15, 1889	Dolese & Shepard	Macadam		1,284.00
Oct. 21, 1889	J. G. & D. S. McBean	C. F. Cedar blocks	5,492.39	1,300.83
Dec. 7, 1889	J. G. & D. S. McBean	C. Cedar blocks	4,195.84	1,048.90
	R. F. Conway	C.W.F. Cedar blocks		
May 25, 1889	R. F. Conway	Granite blocks	5,317.08	1,495.43
July 13, 1889	R. F. Conway	**C. Curb reset C. Granite blocks**	2,707.32	870.21
Aug. 9, 1889	R. F. Conway	C. F. Cedar blocks	5,323.89	1,260.92
May 6, 1889	James Conlan	Granite blocks	1,834.75	485.67
Oct. 18, 1889	Western Paving & Supply Co	Granite blocks	7,950.25	2,375.57
Dec. 4, 1889	McAdam & Amberg	Granite blocks	3,545.94	1,181.98

* Private contract.

STREETS IMPROVED, SOUTH

NAME OF STREET.	FROM	TO	COMMENCED.
Forty-fourth place	Vincennes avenue	St. Lawrence	Sept. 18, 1889
Forty-fourth	Greenwood avenue	Lake avenue	July 12, 1889
Forty-sixth*	Woodlawn avenue	Lake avenue	April 1, 1889
Forty-seventh	Drexel boulevard	Lake avenue	Aug. 7, 1889
Forty-ninth	Cottage Grove ave.	Lake avenue	Nov. 5, 1888
Fifty-eighth	Woodlawn avenue	Madison	May 25, 1889
Garland place	Washington	Randolph	June 12, 1889
Groveland avenue	Twenty-eighth	Twenty-ninth	Oct. 4, 1889
Green Bay avenue*	Eighty-ninth	Harbor avenue	Aug. 1, 1889
Grace avenue*	Jackson Park terrace	S. line Robertson sub-division	Oct. 11, 1889
Harrison	State	Michigan avenue	Oct. 8, 1889
Harrison	State	L. S. & M. S. Ry.	Aug. 12, 1889
Hope avenue	Sixty-third	S. line Robertson sub-division	Oct. 12, 1889
Hope avenue*	Sixty-seventh	S. line Robertson sub-division	Oct. 12, 1889
Indiana avenue	Garfield boulevard	Sixty-second	Sept. 7, 1889
Indiana avenue	Sixty-seventh	Seventy-first	May 15, 1889
Jackson Park terrace*	Illinois Central R.R.	Stony Island avenue.	Oct. 11, 1889
Kimbark avenue*	Forty-ninth	300 feet north	May 1, 1889
Kimbark avenue	Fifty-third	Fifty-eighth	April 8, 1889
Kimbark avenue*	Fifty-eighth	Fifty-ninth	May 17, 1889
Lake avenue	Forty-seventh	Fifty-first	May 8, 1889
Lake avenue	Fortieth	Forty-seventh	June 9, 1889
Langley avenue*	Oakwood boulevard	Fortieth	July 6, 1889
Langley avenue	Forty-sixth	Forty-seventh	July 8, 1889
Langley avenue*	Forty-seventh	Forty-ninth	Nov. 1, 1889
Lexington avenue*	Fifty-fourth	Fifty-fifth	Oct. 15, 1889
Lexington avenue*	Fifty-fifth	Fifty-sixth	Oct. 15, 1889
Lexington avenue	Sixty-third	Sixty-first	Sept. 12, 1889
Lyman	Main	Thirty-first	June 27, 1889
Laurel	Thirty-first	Thirty-ninth	May 7, 1889
La Salle	Randolph	Lake	Oct. 24, 1889
Marble place	Clark	La Salle	July 16, 1889
Market	Adams	Viaduct	July 19, 1889
McGregor	Hanover	Sanger	April 10, 1889
Market	Randolph	Lake	Aug. 28, 1889
Monroe	Michigan avenue	Wabash avenue	Oct. 17, 1889
Madison avenue	Sixty-seventh	Seventy-fifth	May 1, 1889
Maryland avenue*	Sixty-fifth	Sixty-seventh	Sept. 14, 1889
Monroe avenue*	Fifty-eighth	Fifty-ninth	May 17, 1889
Myrtle avenue	Woodlawn avenue	Sixty-fifth	Aug. 15, 1889
Oglesby avenue*	Sixtieth	Sixty-first	Oct. 1, 1889
Oglesby avenue	Sixty-first	Sixty-seventy	Aug. 19, 1889
Orchard*	Lake avenue	Oakenwald avenue.	Aug. 15, 1889
Polk	State	Fifth avenue	Oct. 12, 1889
Prairie avenue	Sixty-seventh	Seventy-first	May 15, 1889
Quarry avenue	C. & A. R. R. tracks.	Archer avenue	Oct. 14, 1889
Randolph	Central avenue	Michigan avenue	Oct. 23, 1889
Reynolds (Eighty-second) avenue	Seventy-ninth	Eighty-second	Oct. 1, 1889
Ridge avenue	Jackson Park terrace	S. line Robertson sub-division	Oct. 11, 1889

* Private contract.

DIVISION, 1889—CONTINUED.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
Dec. 7, 1889	Dolese & Shepard	Macadam		593.00
Oct. 14, 1889	Rockfellow & Palmer	Macadam		513.00
June 1, 1889	Eggleston, Mallette & Brownell	Macadam		648.00
Nov. 30, 1889	Dolese & Shepard	Macadam		3,262.00
Aug. 20, 1889	Brownell & Co.	Macadam		3,916.00
Oct. 30, 1889	Ryan & McCarty	Macadam		1,274.00
July 13, 1889	Lackey & Peterson	C. Granite blocks	1,054.11	386.59
Nov. 12, 1889	J. G. & D. S. McBean	C. F. Cedar blocks	1,793.20	424.70
Oct. 1, 1889	Hans Lorensen	Macadam		1,520.00
Dec. 30, 1889	Dolese & Shepard	Macadam		264.00
Nov. 14, 1889	McAdam & Amberg	C. W. Granite blocks	3,007.03	712 19
Oct. 23, 1889	Sackley & Peterson	Granite blocks	3,280.94	1,330.11
Dec. 1, 1889	Dolese & Shepard	Macadam		1.036.00
Dec. 1, 1889	Dolese & Shepard	Macadam		1,569.00
Nov. 12, 1889	Eggleston, Mallette & Brownell	Macadam		4,381.00
Dec. 8, 1889	Dolese & Shepard	Macadam		3,816.25
Dec. 30, 1889	Dolese & Shepard	Macadam		1,202.00
June 1, 1889	Eggleston, Mallette & Brownell	Macadam		300.00
Sept. 12, 1889	Eggleston, Mallette & Brownell	Macadam		3,526.00
June 20, 1889	Dolese & Shepard	Macadam		615.00
Aug. 16, 1889	Dolese & Shepard	Macadam		2,882.00
Dec. 15, 1889	Rockfellow & Palmer	Macadam		5,377.00
Aug. 1, 1889	Dolese & Shepard	Macadam		385.00
Sept. 3, 1889	Dolese & Shepard	Macadam		658 00
Dec. 1, 1889	Eggleston, Mallette & Brownell	Macadam		1,298.00
Dec. 15, 1889	Dolese & Shepard	Macadam		902.00
Dec. 1, 1889	Dolese & Shepard	Macadam		647.00
Dec. 7, 1889	Eggleston, Mallette & Brownell	Macadam		1,266.00
Nov. 1, 1889	J. G. & D. S. McBean	C.W.F. Cedar blocks	10,323.99	2,445.15
July 3, 1889	J. G. & D. S. McBean	C. F. Cedar blocks	24,352.15	5,218.31
Nov. 30, 1889	Western Paving & Supply Co	Granite blocks	1,576.32	397.00
Aug. 3, 1889	R. F. Conway	Granite blocks	685.79	308.60
Aug. 9, 1889	R. F. Conway	Granite blocks	1,600.00	300.00
July 1, 1889	R. F. Conway	C. F. Cedar blocks	6,786.53	1,607.33
Oct. 7, 1889	James Conlan	Granite blocks	3,161.28	387.09
Nov. 6, 1889	James Conlan	Granite blocks	1,576.00	373 26
Sept. 25, 1889	George H. Ferris	Macadam		5,235.00
Dec. 15, 1889	Dolese & Shepard	Macadam		1,283.00
June 20, 1889	Dolese & Shepard	Macadam		615.00
Dec. 30, 1889	Dolese & Shepard	Macadam		872.00
Dec. 21, 1889	Dolese & Shepard	Macadam		649.00
Dec. 12, 1889	Dolese & Shepard	Macadam		3,901.00
Sept. 15, 1889	Rockfellow & Palmer	Macadam		280 00
Nov. 25, 1889	Western Paving & Supply Co	Granite blocks	4,317.89	1,488.93
Dec. 8, 1889	Dolese & Shepard	Macadam		3,816.25
Nov. 18, 1889	R. F. Conway	C. F. Cedar blocks	667.12	158.00
Nov. 4, 1889	L. A. Marshal	Granite blocks	344.69	119.65
Nov. 10, 1889	Dolese & Shepard	Macadam		2,309.00
Dec. 30, 1889	Dolese & Shepard	Macadam		333.50

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* Private contract.

STREETS IMPROVED, SOUTH

NAME OF STREET.	FROM	TO	COMMENCED.
State	Jackson	Sixteenth	
Sherman	Taylor	Polk	Oct. 12, 1889
School	Forty-seventh	Fifty-fifth	
Sherman	Seventy-eighth	Seventy-ninth	
Sherman	Seventy-fifth	Seventy-sixth	Oct. 1, 1889
St. Lawrence avenue	Forty second	Forty-fifth	May 15, 1889
Sheridan avenue*	Sixtieth	Sixty-first	Oct. 1, 1889
Sheridan avenue	Sixty-first	Sixty-seventh	Aug. 29, 1889
Sixty-second	Madison avenue	Greenwood avenue	April 1, 1889
Sixty-fifth terrace*	Stony Island avenue	Illinois Central R. R.	Oct. 11, 1889
Sixty-fifth	Greenwood avenue	Cottage Grove ave	Nov. 15, 1889
Sixty-seventh	State	Calumet avenue	Aug. 28, 1889
Seventy-sixth	Lake Michigan	French avenue	April 21, 1889
South Park avenue	Sixty-seventh	Seventy-first	May 15, 1889
Taylor	Pacific avenue	Fifth avenue	July 8, 1889
Third avenue	Polk	Twelfth	Sept. 9, 1889
Taylor	State	Pacific avenue	Aug. 21, 1889
Twenty-second place	Wentworth avenue	Portland avenue	Aug. 22, 1889
Twenty-fourth	Wentworth avenue	Hanover	Sept. 26, 1889
Twenty-fifth	Wentworth avenue	Halsted	Aug. 20, 1889
Twenty-fifth	State	Hanover	Aug. 22, 1889
Twenty-fifth	Hanover	Sanger	Aug. 24, 1889
Thirtieth	State	Wentworth avenue	July 2, 1889
Thirty-sixth	Lake avenue	Ellis avenue	Aug. 26, 1889
Twenty-second place	Portland avenue	Archer avenue	Oct. 9, 1880
Thirty-eighth	Cottage Grove ave	Vincennes avenue	Oct. 10, 1889
Third avenue	Jackson	Polk	Oct. 16, 1889
Thirty-fourth	Rhodes avenue	South Park avenue	Nov. 7, 1889
Tompkins place	Fifty-fourth	Fifty-fifth	April 20, 1889
Ullman	Thirty-first	Thirty-fifth	Nov. 1, 1889
University place	Rhodes avenue	Cottage Grove ave	Aug. 8, 1889
Van Buren	Fifth avenue	River	June 12, 1889
Vincennes avenue	Forty-third	Forty-seventh	Sept. 22, 1889
Water	Michigan avenue	Central avenue	June 17, 1889
Washington	Franklin	Market	Aug. 5, 1889
Wallace	Thirty-first	Thirty-ninth	1888
Winter	Forty-third	Forty-seventh	
Winter	Thirty-ninth	Forty-third	
Winter	Seventy-eighth	Seventy-ninth	
Winter	Seventy-fifth	Seventy-sixth	
Wallace*	Seventy-sixth	Seventy-ninth	
Washington avenue	Lake avenue	Fifty-ninth	May 1, 1889
Wharton avenue*	Sixty-fifth	Sixty-seventh	Sept. 9, 1889
Woodlawn avenue	Sixtieth	Sixty-seventh	

DIVISION, 1889—CONTINUED.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
	Western Paving & Supply Co	Granite blocks	30,943.19	6,329.29
Nov. 25, 1889	R. F. Conway	W. C. F. Granite	3,007.88	796.20
	Gahan & Byrnes	Macadam		5,220.00
	——Hodgkins	Macadam		600.00
Nov. 10, 1889	——Hodgkins	Macadam		600.00
Aug. 1, 1889	Dolese & Shepard	Macadam		1,943.00
Dec. 21, 1889	Dolese & Shepard	Macadam		651.00
Dec. 14, 1889	Dolese & Shepard	Macadam		3,909.00
May 6, 1889	Dolese & Shepard	Macadam		2,313.00
Dec. 30, 1889	Dolese & Shepard	Macadam		1,234.00
Dec. 30, 1889		Macadam		1,644.00
Dec. 6, 1889	Eggleston, Mallette & Brownell	Macadam		2,225.50
May 14, 1889	Dolese & Shepard	Macadam		2,331.00
Dec. 8, 1889	Dolese & Shepard	Macadam		3,816.25
July 22, 1889	R. F. Conway	Granite blocks	1,339.30	430.49
Oct. 3, 1889	Western Paving & Supply Co	Granite blocks	5,581.70	1,674.51
Sept. 16, 1889	R. F. Conway	Granite blocks	2,114.16	775.98
Aug. 29, 1889	J. B. Smith & Co	C. Cedar blocks	2,344.62	703.39
Nov. 22, 1889	R. F. Conway	C. F. Cedar blocks	6,596.03	1,562.21
Nov. 16, 1889	W. F. Hair	C. F. Cedar blocks	15,457.84	3,661.07
Nov. 22, 1889	R. F. Conway	C. F. Cedar blocks	11,356.44	2,689.68
Nov. 8, 1889	R. F. Conway	C. F. Cedar blocks	6,077.22	1,439.34
Aug. 20, 1889	R. F. Conway	C. F. Cedar blocks	4,657.76	1,103.15
Nov. 8, 1889	R. F. Conway	C. C. Cedar blocks	1,080.90	304.00
Nov. 9, 1889	J. B. Smith & Co	C. F. Cedar blocks	1,099.50	329.85
Dec. 2, 1889	J. G. & D. S. McBean	C. F. Cedar blocks	3,544 90	1,063.47
Dec. 13, 1889	Western P. & S. Co	Granite blocks	9,223.08	2,202.94
Dec. 11, 1889	J. B. Smith & Co	C. F. Cedar blocks	2,465.87	739.36
May 5, 1889	Dolese & Shepard	Macadam		1,044.00
Dec. 18, 1889	R. F. Conway	C. F. Cedar blocks	7,312.27	2,991.38
Aug. 10, 1889	J. G. & D. S. McBean	Cedar blocks	2,037.12	733.36
July 27, 1889	R. F. Conway	Granite blocks	2,681.14	1,077.24
Dec. 15, 1889	Dolese & Shepard	Macadam		2,638.00
June 29, 1889	McAdam & Amberg	C. Granite blocks	899.66	197.48
Aug. 23, 1889	R. F. Conway	Granite blocks	1,400.81	341.01
July 29, 1889	A. J. McBean & Co	C. F. Cedar blocks	15,415.70	5,336.20
		Macadam		2,600.00
		Macadam		2,600.00
	——Hodgkins	Macadam		600.00
	——Hodgkins	Macadam		600.00
	——Hodgkins	Macadam		1,925.00
Aug. 28, 1889	E., M. & Brownell	Macadam		6,717.00
Dec. 15, 1889	Dolese & Shepard	Macadam		1,287.00
	E., M. & Brownell	Macadam		3,100.00

*Private contract.

Lineal feet paving........................223,635.88 feet, or 42.35 miles.

STREETS IMPROVED,

NAME OF STREET.	FROM	TO	COMMENCED.
Alley, Block 30 Carpenter addition	Curtis	May	May 9, 1889
Alley, Block 18 Smith's subdivision	Paulina	Jackson	May 22, 1889
Alley	Lake to Walnut	**Ashland Avenue to Paulina**	Sept. 10, 1889
Alley	Lake to Sheldon	**Bryant place to Randolph**	Oct. 15, 1889
Albany avenue	Madison	Colorado avenue	June 19, 1889
Armitage avenue	Milwaukee avenue	Elston avenue	May 7, 1889
Armour	Ohio	Chicago avenue	....
Ada	Austin avenue	Kinzie	May 1889
Ada	Indiana	Erie	July 2, 1889
Allport	Nineteenth	Twenty-second	May 19, 1889
Augusta	Robey	Wood	Aug. 6, 1889
Armitage avenue	Elston avenue	Western avenue	Aug. 16, 1888
Avon place	Robey	Hoyne avenue	Oct. 16, 1889
Albany avenue	Madison	Lake	Sept. 28, 1889
Armour	Kinzie	Ohio	....
Blue Island avenue	Twenty-first	Twenty-second	May 24, 1889
Bauwans	Ashland avenue	Blackhawk	July 1, 1889
Blue Island avenue	Sixteenth	Twenty-first	Sept. 20, 1889
Blucher	Wood	Lull	June 24, 1889
Canal	Eighteenth	Lumber	May 7, 1889
Carroll avenue	Ada	Elizabeth	July 2, 1889
Congress	Campbell avenue	Rockwell	June 12, 1889
California avenue	Harrison	Twelfth	Aug. 3, 1889
Church place	Aberdeen	Centre	July 8, 1889
Cypress	Kendall	Twelfth	June 10, 1889
Colorado avenue	Kedzie avenue	Jackson	July 2, 1888
Clifton Park avenue	Ogden avenue	Twenty-second	Aug. 23, 1889
Cleaver	Blanche avenue,	Bradley	Aug. 8, 1889
Cork	Ashland avenue	Paulina	Aug. 29, 1889
California avenue	Madison	Fulton	July 4, 1889
California avenue	Madison	Harrison	July 4, 1889
Division	Western avenue	Sacramento avenue	....
Dania	North avenue	Division	July 30, 1889
Desplaines	Indiana	Ohio	Aug. 13, 1889
Depot	Madison	Monroe	Nov. 15, 1889
Emerson avenue	Leavitt	Wood	June 3, 1889
Emerson avenue	Leavitt	Oakley avenue	May 1889
Eagle	Desplaines	Halsted	May 10, 1889
Elizabeth	Indiana	Erie	May 1889
Eighteenth	Union	Halsted	June 1, 1889
Elk Grove avenue	Wood	North avenue	July 3, 1889
Eighteenth	Wood	Leavitt	Aug. 16, 1889
Eighteenth	Leavitt	Western avenue	Aug. 16, 1889
Eleventh	Throop	Ashland avenue	....
Eleventh	Throop	Ashland avenue	Nov. 1, 1889
Emerson avenue	Wood	Leavitt	Nov. 4, 1889
Flournoy	Oakley avenue	Western avenue	June 16, 1889
Fullerton avenue	River	Elston avenue	July 1, 1889
Fisk	Eighteenth	Twentieth	June 16, 1889

WEST DIVISION, 1889.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
May 9, 1889	Western Paving & Supply Co	W.C.C. Cedar blocks	265.65	252.00
May 23, 1889	Western Paving & Supply Co	W. C. Cedar blocks	359.02	209.82
Sept. 14, 1889	Olaf Vider	W.C.C. Cedar blocks	1.025.72	599.44
Oct. 21, 1889	Olaf Vider	W.C.G. Cedar blocks	962.19	866.00
Aug. 7, 1889	R. F. Conway	C. F. Cedar blocks	1,929.95	620.34
Aug. 1, 1889	McAdam & Amberg	C. F. Cedar blocks	25,397.94	6,015.30
Aug. 1, 1889	J. B. Smith & Co	C. C. Cedar blocks	4,616.00	1,093.26
June 29, 1889	Western Paving & Supply Co	C. C. Cedar blocks	1,654.81	1,391.93
Aug. 6, 1889	J. B. Smith & Co	C. C. Cedar blocks	3,212.94	760 96
July 15, 1889	R. F. Conway	C.W.F. Cedar blocks	5,079.56	1,203.05
Sept. 4, 1889	J. G. & D. S. McBean	C. Cedar blocks	5,068.08	1,200.33
Aug. 15, 1889	McAdam & Amberg	Curbing and filling	....	6,015.30
Nov. 15, 1889	J. B. Smith & Co	C. F. Cedar blocks	1,719.70	619.00
Nov. 8, 1889	Olaf Vider	C. F. Cedar blocks	3,504.98	1,051.49
....	Olaf Vider	C. C. Cedar blocks	....	321.00
July 12, 1889	R. F. Conway	C.W.F. Cedar blocks	2,769.63	778.96
July 27, 1889	R. F. Conway	C. F. Cedar blocks	3,246.31	811.58
Oct. 9, 1889	W. F. Hair	Cedar blocks	9,291.70	2,555.79
July 19, 1889	Western Paving & Supply Co	F. Cedar blocks	1,229.60	307.40
May 16, 1889	W. F. Hair	W.C.F. Cedar blocks	1,485.06	666.28
July 10, 1889	R. F. Conway	C. C. Cedar blocks	2,014.41	477.09
June 29, 1889	R. F. Conway	C. F. Cedar blocks	2,457.36	737.20
Oct. 3, 1889	R. F. Conway	C. F. Cedar blocks	11,814.49	2,798.17
July 17, 1889	Olaf Vider	W.C.C. Cedar blocks	1,186.57	599.99
July 31, 1889	R. F. Conway	C. F. Paving	4,393.74	1,098.44
June 23, 1889	Western Paving & Supply Co	C. F. Paving	5,138.47	1,217.01
Oct. 22, 1889	J. G. & D. S. McBean	C. C. Paving	3,800.43	1,140.13
Aug. 19, 1889	Western Paving & Supply Co	Paving	5,259.87	1,247.76
Sept. 7, 1889	J. B. Smith & Co	Paving	1,867.53	600.28
Aug. 1, 1889	McAdam & Amberg	C. F. Paving	7,355.53	1,742 10
Sept. 6, 1889	McAdam & Amberg	C. F. Paving	10,273.99	2,433.31
....	McAdam & Amberg	C. F. Paving	....	3,951.83
Sept. 22, 1889	Western Paving & Supply Co	C. F. Paving	11,352.25	2,688.69
Aug. 17, 1889	Western Paving & Supply Co	Curbing and paving.	1,744.66	323.50
Dec. 1, 1889	Western Paving & Supply Co	C. F. Paving	800.80	300.30
Dec. 1, 1889	R. F. Conway	Curbing	....	2,397.14
July 3, 1889	Western Paving & Supply Co	Curbing and paving.	1,976.67	610.05
May 24, 1889	Western Paving & Supply Co	Paving	2,315.16	740.98
June 27, 1889	Western Paving & Supply Co	Curbing and paving.	3,197.30	757.25
June 15, 1889	J. B. Smith & Co	Paving	1,960.18	458.22
Oct. 4, 1889	Western Paving & Supply Co	C. F. Paving	4,370.38	1,035.09
Nov. 30, 1889	R. F. Conway	C. W. F. Paving	7,300.00	2,986.00
Nov. 30, 1889	R. F. Conway	C. W. F.	....	674.00
Aug. 26, 1889	Wm. Johnson	Curbing and filling	....	1,764.00
Nov. 12, 1889	J. B. Smith & Co	Paving	6,880.82	1,764.00
Dec. 7, 1889	Olaf Vider	Paving	7,458.16	2,397.40
July 31, 1889	R. F. Conway	C. F. C. Cedar blocks	1,500.24	613.73
July 23, 1889	Western Paving & Supply Co	C. F. Cedar blocks	3,390.91	635.80
July 6, 1889	R. F. Conway	C.W.F. Cedar blocks	3,861.21	914.50

STREETS IMPROVED, WEST

NAME OF STREET.	FROM	TO	COMMENCED.
Francisco	Lake	Colorado avenue	July 1, 1889
Fry	Ashland avenue	Rose	July 18, 1889
Fay	Erie	Pratt	Nov. 2, 1889
Fulton	Rockwell	California avenue	Sept. 17, 1889
Fulton	California avenue	Kedzie avenue	Sept. 1, 1889
Fulton	Rockwell	Kedzie avenue	....
Gilpin place	Centre avenue	Lytle	June 27, 1889
Girard	Milwaukee avenue	Bloomingdale road	Sept. 15, 1889
Hastings	Ashland avenue	Wood	July 8, 1889
Harvard	Western avenue	Campbell avenue	Sept. 3, 1889
Hinman	Robey	Western avenue	July 1, 1889
Hastings	Ashland avenue	Wood	June 28, 1889
Holt	Division	North avenue	Aug. 20, 1889
Hoyne avenue	Indiana	Chicago avenue	July 12, 1889
Hinman	Blue Island avenue	Robey	Oct. 11, 1889
Irving avenue	Adams	Jackson	June 26, 1889
Iowa	Wood	Lincoln	Aug. 3, 1889
Ingraham	Noble	C. & N.-W. Ry	Aug. 1, 1889
Ingraham	Elston avenue	C. & N.-W. Ry.	Aug. 1, 1889
Irving avenue	Fulton	Kinzie	....
Johnson	Eighteenth	Canalport avenue	Nov. 1, 1889
Kedzie avenue	Van Buren	Central Park boulevard	Mar. 12, 1889
Loomis	Van Buren	Congress	May 25, 1889
Loomis	Sixteenth	Blue Island avenue	May 25, 1889
Lincoln	Taylor	Twelfth	Jan. 8, 1889
Lumber	Canal	Twenty-second	July 25, 1889
Lessing	Chicago avenue	C. & N.-W. Ry. tracks	July 12, 1889
Lisle	Union	Halsted	June 25, 1889
Leavitt	Milwaukee avenue	Armitage avenue	June 19, 1889
Loomis	Fourteenth	Blue Island avenue	1888
Leavitt	Division	North avenue	May 6, 1889
Luce	Blackhawk	North terminus	Sept. 2, 1889
Madison	Western avenue	Rockwell	Sept. 28, 1889
Madison, S. ½	Oakley avenue	West line of lot 2	Sept. 24, 1889
Monroe	Rockwell	California avenue	Aug. 26, 1889
Milwaukee avenue	Lake	Austin avenue	Aug. 28, 1889
Meridian	Desplaines	Halsted	July 2, 1889
Monroe	California avenue	Sacramento avenue	Aug. 23, 1889
Millard avenue	Ogden avenue	Twenty-sixth	Aug. 22, 1889
Monroe	Albany avenue	Kedzie avenue	Sept. 26, 1889
Nixon	Polk	Taylor	July 12, 1889
Nebraska	Throop	Ashland avenue	July 3, 1889
Newton	Iowa	Augusta	July 15, 1889
Newton	Augusta	Division	July 15, 1889
North avenue	Western avenue	California avenue	July 17, 1889
Nineteenth	Ashland avenue	Hoyne avenue	....
Nineteenth	Hoyne avenue	Western avenue	....
Newberry avenue	Taylor	Twelfth	Oct. 18, 1889
Nicholett avenue	California avenue	Sacramento avenue	June 20, 1889

DIVISION, 1889—CONTINUED.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
Aug. 7, 1889	R. F. Conway	C. F. Cedar blocks	4,772.85	1,130.41
Aug. 10, 1889	J. B. Smith & Co	C. F. Cedar blocks	3,297.26	1,043.97
Nov. 9, 1889	Western Paving & Supply Co	C. F. Cedar blocks	1,905.83	571.08
Oct. 2, 1889	Wtstern Paving & Supply Co	Cedar blocks	5,601.60	1,326.63
Nov. 11, 1889	Western Paving & Supply Co	Cedar blocks	12,326.09	2,919.33
....	R. F. Conway	Curbing and filling	....	3,854.00
Aug. 2, 1889	McAdam & Amberg	C. C. Cedar blocks	1,369.30	424.95
Nov. 6, 1889	McAdam & Amberg	C. F. Cedar blocks	8,967.40	2,123.86
July 18, 1889	J. G. & D. S. McBean	Cedar blocks	5,135.36	1,213.01
Oct. 18, 1889	McAdam & Amberg	C. F. Cedar blocks	2,095.79	628.73
Unfinished.	Wm. Kinsella	C. W. and F	....	2,598.00
July 6, 1889	Carden & Crowley	Curbing and filling	....	1,200.00
Sept. 22, 1889	McAdam & Amberg	C. W. Cedar blocks.	8,683.89	2,647.63
Sept. 23, 1889	R. F. Conway	C. Cedar blocks	7,687.74	1,820.78
Oct. 22, 1889	J. G. & D. S. McBean	Cedar blocks	12,560.78	2,962.13
July 13, 1889	R. F. Conway	C. C. Cedar blocks	652.22	326.48
Aug. 26, 1889	Western Paving & Supply Co	C. C. Cedar blocks	2,590 87	613.63
Aug. 19, 1889	Western Paving & Supply Co	Cedar blocks	1,322.60	330.65
Aug. 19, 1889	Western Paving & Supply Co	C. Cedar blocks	1,316.00	329.00
....	J. B. Smith & Co	Curbing and filling	... .	543.00
Nov. 16, 1889	R. F. Conway	C. F. Cedar blocks	5,834.00	1,381.74
June 17, 1889	McAdam & Amberg	C. F. Cedar blocks	19,690.14	4,663.45
May 30, 1889	W. F. Hair	Cedar blocks	1,081.62	256.17
June 7, 1889	J. B. Smith & Co	Cedar blocks	3,701.31	869.76
May 27, 1889	R. F. Conway	Cedar blocks	3,386.75	802.12
Aug. 14, 1889	McAdam & Amberg	C. Cedar blocks	2,892.49	1,301.62
July 29, 1889	Western Paving & Supply Co	C. W. W. C. Cedar blocks	2,378.21	445.91
Aug. 20, 1889	J. G. & D. S. McBean	C. F. Cedar blocks	1,808.79	452.20
July 11, 1889	Western Paving & Supply Co	C. F. Cedar blocks	6,368.67	1,508.37
June 21, 1889	Wm. Kinsella	Curbing and filling	....	1,688.00
June 27, 1889	R. F. Conway	C. F. Cedar blocks	11,483.78	2,719.84
Nov. 13, 1889	J. B. Smith & Co	C. F. Cedar blocks	1,312.67	393.80
Nov. 12, 1889	R. F. Conway	C. F. Cedar blocks	3,037.95	945.30
Sept. 29, 1889	Western Paving & Supply Co	C. Cedar blocks	513.07	288.60
Oct. 8, 1889	McAdam & Amberg	C. F. Cedar blocks	5,137.15	1,216.69
Sept. 12, 1889	McAdam & Amberg	C. re-set Cedar blocks	4,814.52	1,686.01
July 13, 1889	J. G. & D. S. Bean	C. Cedar blocks	2,335.86	750.81
Oct. 2, 1889	McAdam & Amberg	C. F. Cedar blocks	5,011.77	1,145.00
Nov. 23, 1889	Western Paving & Supply Co	C. F. Cedar blocks	12,285.17	3,673.31
Nov. 13, 1889	R. F. Conway	C. F. Cedar blocks	2,673.55	802.00
July 16, 1889	J. G. & D. S. McBean	Cedar blocks	2,602.56	836.54
July 11, 1889	J. G. & D. S. McBean	C. Cedar blocks	7,284.67	1,765.96
Aug. 31, 1889	McAdam & Amberg	C. C. Cedar blocks	3,035.02	718.82
Aug. 31, 1889	McAdam & Amberg	C. C. Cedar blocks	5,611.43	1,329.02
Sept. 1, 1889	J. G. & D. S. McBean	C.C. F. Cedar blocks	14,446.78	2,955.03
....	J. G. & D. S. McBean	C.W.F. Cedar blocks	4,300.00	3,387.00
....	J. G. & D. S. McBean	C.W.F.	....	1,998 00
Oct. 24, 1889	McAdam & Amberg	Cedar blocks	3,467.93	814.60
Aug. 3, 1889	Barber Asphalt Co	Asphalt	4,543.54	1,363.06

STREETS IMPROVED, WEST

NAME OF STREET.	FROM	TO	COMMENCED.
Ohio	Lincoln	Robey	July 8, 1889
Oakley avenue	Twelfth	Fourteenth	July 15, 1889
Ogden avenue	Albany avenue	Millard avenue	Oct. 27, 1889
Ogden place	Paulina	Wood	Aug. 1, 1889
Paulina	Polk	Twelfth	Jan. 2, 1889
Pearce	Desplaines	Halsted	July 10, 1889
Park avenue	Western avenue	C., St. L. & P. R. R.	Aug. 18, 1889
Paulina	Fifteenth	Twenty-first	Oct. 16, 1889
Potomac avenue	Robey	Leavitt	Sept. 1, 1889
Polk	Rockwell	Campbell avenue	July 25, 1889
Potomac avenue	Leavitt	Western avenue	
School	Canal	Clinton	May 13, 1889
Sloan	Noble	Elston avenue	July 1, 1889
Sibley	Taylor	Gilpin place	June 27, 1889
Seventeenth	Union	Halsted	July 25, 1889
Spruce	Loomis	Laflin	July 23, 1889
Superior	Wood	Robey	July 9, 1889
Silver	Harrison	Gurley	Oct. 16, 1889
Sacramento avenue	Lake	Van Buren	Oct. 16, 1889
Superior	Leavitt	Robey	Oct. 1, 1889
Twelfth	Ashland avenue	Ogden avenue	June 5, 1889
Thirteenth	Wood	Ogden avenue	May 1, 1889
Twenty-second	Brown	South bank Chicago river	April 12, 1889
Twelfth	California avenue	Kedzie avenue	Sept. 21, 1889
Twentieth	Ashland avenue	Western avenue	July 31, 1889
Twelfth	Ogden avenue	California avenue	Aug. 18, 1888
Twenty-second	Western avenue	C., B. & Q. R. R.	Sept. 14, 1888
Union	Sixteenth	Twenty-second	Aug. 15, 1889
Union place	Harrison	Congress	Oct. 16, 1889
Vernon Park place	Centre avenue	Loomis	Aug. 1, 1889
Walnut	Sacramento avenue	Homan avenue	June 1, 1889
Walnut	Kedzie avenue	Homan avenue	Aug. 1888
Walnut	California avenue	Albany avenue	Aug. 1888
Wood	Twelfth	Fifteenth	1888
Wood	Armitage avenue	North avenue	Aug. 20, 1888
Western avenue	Lake	Indiana	July 1, 1889
Wood	Twelfth	Fifteenth	July 13, 1889
Western avenue	Twenty-second	Twenty-sixth	Oct. 23, 1889
Winchester avenue	Twelfth	Polk	Jan. 4, 1889
Western avenue	Twenty-second	Ogden	Oct. 23, 1888
Warren avenue	East line Hoyne avenue	West line Hoyne avenue	Dec. 3, 1889

DIVISION, 1889—CONTINUED.

FINISHED.	CONTRACTOR.	NATURE OF IMPROVEMENT.	SQUARE YARDS.	LINEAL FEET.
Aug. 26, 1889	McAdam & Amberg	C. Cedar blocks	2,528.22	598.79
Aug. 17, 1889	Wm. Kinsella	C. F. Cedar blocks	4,689.65	1,107.79
Nov. 18, 1889	Western Paving & Supply Co	C. F. Cedar blocks	8,995.31	4,428.24
Aug. 30, 1889	W. F. Hair	C. C. Cedar blocks	2,551.06	604.19
May 22, 1889	R. F. Conway	C. F. Cedar blocks	6,622.10	1,568.39
July 13, 1889	J. G. & D. S. McBean	Cedar blocks	3,258.67	814.45
Oct. 15, 1889	W. F. Hair	C. C. F. Cedar blocks	4,943.00	1,235.75
Nov. 16, 1889	McAdam & Amberg	C. F. Cedar blocks	9,684.91	2,293.79
Oct. 15, 1889	Western Paving & Supply Co	C. F. Cedar blocks	4,187.82	1,256.34
Sept. 4, 1889	J. B. Smith & Co	C. F. Cedar blocks	2,332.09	699.63
....	Western Paving & Supply Co	Curbing and filling	....	1,200.00
May 25, 1889	W. F. Hair	C. C. Cedar blocks	384.24	198.75
Aug. 19, 1889	R. F. Conway	C. F. Cedar blocks	2,976.53	744.13
July 23, 1889	J. G. & D. S. McBean	C. Cedar blocks	3,004.46	711.58
Aug. 12, 1889	W. F. Hair	C. W. F. Cedar blocks	1,809.78	452.45
Aug. 2, 1889	R. F. Conway	C. Cedar blocks	2,000.03	600.00
Aug. 15, 1889	R. F. Conway	C. Cedar blocks	5,057.43	1,197.81
Oct. 19, 1889	Olaf Vider	Cedar blocks	1,507.90	424.10
Dec. 24, 1889	R. F. Conway	C. F. Cedar blocks	11,521.47	2,728.76
Oct. 18, 1889	Western Paving & Supply Co	C. F. Cedar blocks	4,552.34	1,204.70
July 2, 1889	J. B. Smith & Co	Cedar blocks	19,287.34	4,821.84
May 20, 1889	A. J. McBean & Co	G. Cedar blocks	17,609.48	4,170.67
May 27, 1889	Olaf Vider	C. F. Cedar blocks	8,855.99	1,771.20
Unfinished.	Wm. Kinsella	Curbing and filling	....	2,606.00
Nov. 21, 1889	Olaf Vider	C. W. F Cedar blocks	23,093.17	5,469.44
Aug. 12, 1889	McAdam & Amberg	C. F. Cedar blocks	17,492.33	3,358.94
Unfinished.	McAdam & Amberg	C. W. Filling	....	4,905.00
Sept. 26, 1889	R. F. Conway	C. F. Cedar blocks	11,035.86	2,613.76
Nov. 2, 1889	W. F. Hair	C. F. Cedar blocks	1,082.85	348.00
Aug. 24, 1889	J. G. & D. S. McBean	C. C. Cedar blocks	5,729.45	1,356.97
July 26, 1889	Barber Asphalt Co	Asphalt	9,406.99	2,822.09
June 28, 1889	R. F. Wilson	Curbing and filling	....	1,345.00
June 28, 1889	R. F. Wilson	Curbing and filling	....	2,010.00
June 28, 1889	R. F. Conway	Curbing and filling	....	1,937.60
May 1, 1889	R. F. Conway	C. F. Cedar blocks	11,519.64	2,728.34
Sept. 7, 1889	McAdam & Amberg	C. C. Cedar blocks	4,161.86	985.70
July 30, 1889	R. F. Conway	Cedar blocks	8,641.44	2,046.66
Aug. 16, 1889	McAdam & Amberg	C. W. F. Cedar blocks	14,987 85	2,810.22
May 25, 1889	R. F. Conway	C. F. Cedar blocks	5,407.91	1,622.37
Aug. 15, 1889	McAdam & Amberg	C. W. F. Cedar blocks	22,381.36	4,590.59
Dec. 14, 1889	Barber Asphalt Co	Asphalt	397.00	94.00

Lineal feet paving........................175,006.35 feet, or 33.14 miles.

On unpaved streets, lineal feet curbing....... 30,511.78 feet, or 5.78 miles.

On unpaved streets, lineal feet curb wall..... 10,175.00 feet, or 1.93 miles.

GRAND TOTAL................215,693.22 feet, or 40.85 miles.

SUMMARY OF STREETS IMPROVED IN 1889.

PAVEMENT.	NORTH DIVISION, INCLUDING LAKE VIEW.			SOUTH DIVISION, INCLUDING HYDE PARK AND LAKE.			WEST DIVISION, INCLUDING JEFFERSON AND CICERO.			TOTAL.		
	Square Yards.	Lineal Feet.	Miles.	Square Yards.	Lineal Feet.	Miles.	Square Yards.	Lineal Feet.	Miles.	Square Yards.	Lineal Feet.	Miles.
Cedar	321,421.29	95,272.52	18.04	234,364.02	65,840.13	12.87	667,164.95	170,727.20	32.34	1,222,950.26	331,339.85	62.75
Asphalt	....	....	.....	....	....	.....	14,347.53	4,279.15	0.80	14,347.53	4,279.15	0.80
Granite	....	....	.....	110,362.99	29,985.75	5.68	....	....	.....	110,362.99	29,985.75	5.68
Macadam	290,860.00	74,738.20	14.15	463,574.00	128,310.00	24.30	....	....	.....	754,434.00	203,048.20	38.45
TOTALS	612,281.29	170,010.72	32.19	808,301.01	223,635.88	42.35	681,512.48	175,006.35	33.14	2,102,094.78	568,652.95	107.68
Curb and Fill	....	2,726.51	0.51	....	....	.....	....	30,511.87	5.78	....	33,238.38	6.29
Curb Wall	....	....	.....	....	....	.....	....	10,175.00	1.93	....	10,175.00	1.93
TOTALS	....	2,726.51	0.51	....	....	.....	....	40,686.87	7.71	....	43,413.38	8.22
GRAND TOTALS	....	172,737.23	32.70	....	223,635.88	42.35	....	215,693.22	40.85	....	612,066.33	115.90

RECAPITULATION OF STREETS, SHOWING PAVED, IMPROVED AND UNIMPROVED STREETS BY TOWNSHIPS AT THE CLOSE OF THE YEAR 1889.

TOWNSHIP.	Miles of Streets in Chicago.	PAVED STREETS—MILES.						Total.	IMPROV'D STREETS. MILES.			Total.	Unimproved Streets – Miles.	Miles Re-paved in 1889
		Cedar Block.	Macadam.	Medina Stone.	Granite.	Sheet Asphalt.	Asphalt Block.		Gravel.	Cinders.	Planked.			
North Chicago........	165.57	69.49	1.26	.49	.04	2.19	......	73.47	.42	1.26	......	1.68	93.02	2.60
South Chicago	224.48	76.47	10.03	1.70	18.02	.33	4.11	110.66	4.38	.36	......	4 74	113.33	4.15
West Chicago.........	366.42	184.93	20.58	.39	.69	1.62	......	208.21	2.64	8.29	.47	11.40	151.66	4.85
Hyde Park	521.10	1.27	113.40	.....	......	......	......	114.67	.....	......	......	......	406.43	......
Lake.................	330.56	3.48	33.88	.....	......	......	......	37.36	.....	......	......	......	293.20	......
Lake View	127.70	17.40	26.83	.....	......	......	......	44.23	.....	......	......	.....	83.47	......
Jefferson	232.96	......	......	.....	......	......	.....	....	33.00	......	......	33 00	199.96	......
Cicero ....•..........	78.39	......	......	.....	......	......	......	....	......	......	......	......	78.39	......
Total......... .	2,047.28													
Viaduct approaches....	1.15	1.15	......	......	......	......	......	1.15	......	......	......	......	....	......
		354.19	.....	......	......	......	......	589.75	......	......	......	......	....	......
Less repaving done in 1889 ...	....	11.60	......	......	......	......	......	11.60	......	......	......	......	....	......
	2,048.43	342.59	205.98	2.58	18.75	4.14	4.11	578.15	40.44	9.91	.47	50.82	1,419.46	11.60

The total number of miles of pavement laid each year, from the introduction of street paving in 1855 to the present date, is given in the following review, the number of miles of paved streets in the annexed towns of Hyde Park, Lake and Lake View being added to the total of 1889.

Year.	Miles.	Year.	Miles.	Year.	Miles.	Year.	Miles.
1855	1.72	1864	2.40	1873	10.19	1882	24.95
1856	.26	1865	2.03	1874	9 07	1883	22.49
1857	2.62	1866	8.87	1875	11.49	1884	34.52
1858	7.20	1867	11.37	1876	10.50	1885	38.06
1859	5.70	1868	5.46	1877	12.29	1886	43.66
1860	....	1869	18.32	1878	11.01	1887	36.75
1861	.69	1870	19.96	1879	6.83	1888	54.33
1862	2.57	1871	25.63	1880	16.84	1889	254.22
1863	2.00	1872	1.82	1881	24.52		
						Total..	740.34

Of this amount, 162.19 miles have been repaved during the same period, which reduces the actual amount of paved streets within the corporate limits on January 1, 1890, to 578.15 miles, to which is added 50.82 miles of streets graveled, cindered and plank roads, and 1,419.46 miles of unimproved streets, making a total of 2,048.43 miles of streets in Chicago at this date, less 1.15 miles of viaduct approaches, making a grand total of 2,047.28 miles.

REPAVING.

The amount of repaving done by the division foremen in repairing improved streets, the replacing of pavement where openings were made by gas companies, water, sewerage and fire alarm telegraph departments, etc., and on account of street permits and general repairs; also the amount of repaving done by contractors for gas companies, etc., the work having been done under the supervision of this Department, and the expense of same paid by the companies interested, is given in the following table by divisions of the city:

FOR WHAT PURPOSE.	NORTH DIV.	SOUTH DIV.	WEST DIV.	TOTAL.
	Square Yds.	Square Yds.	Square Yds.	Square Yds.
General Repairs...........	14.902	23,753	47,197	85,852
Gas Companies..........	6	317	3,681	4,004
Water Department........	1,460	878	4,085	6,423
Sewerage Department.....	129	298	1,009	1,436
City Engineer's Department		53	1,990	2,043
Fire Alarm Telegraph Dept	8,344	4,532	12,314	25,190
Street Permits........	2,996	2,218	4,763	9,977
TOTALS..............	27,837	32,049	75,039	134,925

Total number of square yards..............	134,925
To which is added the amount of repaving done by contractors for gas companies, etc.	20,270
Grand total repaving done, square yards,	155,195

LUMBER.

The following table shows in detail the amount of lumber used by the division foremen in the construction and repairs of aprons, culverts, crossings, etc. and also for sidewalk intersections and general repairs:

FOR WHAT USED.	NORTH DIVISION.			SOUTH DIVISION.			WEST DIVISION.		
		Lumber.			Lumber.			Lumber.	
	No.	No. Feet Pine.	No. Feet Oak.	No.	No. Feet Pine.	No. Feet Oak.	No.	No. Feet Pine.	No. Ft. Oak
Street—									
Aprons	548	26,535	....	612	58,620	......	1,436	156,832	...
Crossings	216	33,910	....	831	197,174	......	1,294	229,425	...
Culverts	31	5,854	....	558	198,074	......	759	284,586	..
Drain boxes	23	2,926	....	53	12,834	......	93	13,055	...
Steps and railings	121	6,138	...	140	29,744	......	1,356	117,636	...
Sidewalk intersections	408	82,156	....	333	96,104	......	801	303,487	...
General repairs	.....	52,351	390	...	369,810	......	.....	232,935	...
GRAND TOTAL.	1,347	209,870	390	2,527	962,360	.....	5,739	1,337,916	..

RECAPITULATION.

Pine lumber used	2,510,206 feet.
Oak lumber used	390 feet.
Grand total	2,510,596 feet.

UNIMPROVED STREETS.

In the work of grading and ditching, the money at the disposal of this Bureau for that purpose has been judiciously expended in keeping unimproved streets in good, passable condition.

The total length of streets graded and ditched by the division foremen amounts in the aggregate to about 627 miles; an increase of 336 miles over last year, the greater part of the increase being in the territory annexed on July 15, 1889.

IMPROVED STREETS.

The contract for sweeping with machinery the improved streets in the First Ward was awarded to Jno. S. Cooper, at $5.49 per lineal mile, on April 3, 1889.

The contract for sweeping and cleaning all improved streets in the city outside of the First Ward was also awarded to Jno. S. Cooper, at $21.99 per lineal mile. The contract expired December 31, 1889, but owing to the inclement weather no sweeping was done outside the First Ward after November 26, the Bureau doing the work by hand after that date.

During the months of January and February the streets of the First Ward were swept by machinery at $7.00 per mile. During the month of December the expense of cleaning outside the First Ward was considerable above the average, owing to the large accumulation of debris arising from the soft condition of the streets for want of frost.

The street cleaning done during the year under contracts with Jno. S. Cooper cost $102,714.70. The remainder of the work was done by the Department. The total cost of sweeping and cleaning the paved streets of Chicago for 1889 was $213,247.77, classified as follows:

CLASS A.

The Department swept and cleaned by hand 551$\frac{68}{100}$ miles, and cleaned 2,194$\frac{89}{100}$ miles, making a total of 2,746$\frac{57}{100}$ miles, at a cost of.................	$ 75,852 07
Sweeping by contract 2,194$\frac{89}{100}$ miles at $5.49......	11,228 80
Sweeping January and February 149$\frac{57}{100}$ miles at $7.00	1,046 99
Total...	$ 88,127 86

CLASSES B, C, D, E AND F.

Sweeping and cleaning 4,112$\frac{73}{100}$ miles at $21.99....	$ 90,438 91
Cost of inspection..........	5,428 50
Total.................................	$183,995 27
For cleaning macadamized roadways..............	29,252 50
Grand total...........................	$213,247 77

CLASS "A."

MONTHS, 1889.	NUMBER OF LINEAL MILES CLEANED BY THE DEPARTMENT.							COST.	
	Streets.	Streets (not included in Class A).	Alleys.	Bridges.	Viaducts.	Inter-sections.	Total Lineal Miles.	Total Cost.	Average Cost for Each Lineal Mile.
January	87.28	6.52	4.61	1.47	.49	48.23	148.60	$5,798 57	$39 02
February	71.28	3.24	1.97	1.05	.81	64.17	142.52	4,887 96	34 30
March	135.32	43.46	8.26	.85	.67	9.86	198.42	18,273 23	92 10
April	259.27	....	7.00	1.88	2.29	....	270.44	8,422 67	31 14
May	218.28	....	11.99	2.00	2.07	....	234.34	5,875 22	25 07
June	209.19	....	12.16	1.28	1.08	3.95	227.66	5,061 53	22 23
July	254.42	....	13.72	1.25	1.10	....	270.49	6,285 44	23 23
August	263.54	....	20.19	1.68	1.45	....	286.86	6,356 04	22 15
September	260.33	....	14.30	.62	.58	2.49	278.32	5,996 84	21 54
October	255.25	....	13.24	3.35	1.99	8.27	282.10	6,332 73	22 44
November	187.94	2.00	5.32	2.81	.62	15.17	213.86	5,954 40	27 89
December	125.79	51.95	5.13	.04	.16	9.84	192.91	8,883 23	46 05
Totals	2,327.89	107.17	117.89	18.28	13.31	161.98	2,746.52	$88,127 86	$32 00

Average number of lineal miles swept and cleaned each month, 228 87
Average cost for sweeping and cleaning each month..........$7,343 98

STATEMENT OF WORK DONE BY THE CONTRACTOR IN CLEANING STREETS OUTSIDE OF THE FIRST WARD.

1889.	CLASS B.			CLASS C.			CLASS D.			CLASS E.			CLASS F. (ALLEYS.)			TOTALS.		
	Cleaned twice each Week.			Cleaned once each Week.			Cleaned twice each Month.			Cleaned once each Month.			Cleaned once each Mo.					
MONTHS.	Lineal Feet.	Lineal Miles.	Cost.	Lineal Feet.	Lineal Miles.	Cost.	Lineal Feet.	Lineal Miles.	Cost.	Lineal Feet.	Lineal Miles.	Cost.	Lineal Feet.	Lineal Miles.	Cost.	Lineal Feet.	Lineal Miles.	Cost.
March	71,935	13.62	$ 299 51	314,817	59.64	$1,311 48	259,601	49.16	$1,081 03	497,042	94.13	$2,069 92	8,904	1.69	$ 37 16	1,052,299	218.24	$4,799 10
April...........	486,786	92.20	2,027 48	829,508	157.10	3,454 62	554,477	105.01	2,309 17	759,473	143.84	3,163 04	36,674	6.94	152 61	2,666,918	505.09	11,106 92
May	503,469	95.35	2,096 75	831,304	157.46	3,462 55	518,018	98.11	2,157 43	686,735	130.06	2,860 02	37,863	7.17	157 67	2,577,389	488.15	10,734 42
June......... ..	358,719	67.93	1,493 77	729,058	138.08	3,036 88	477,635	90.46	1,989 22	689,817	130.55	2,870 80	11,055	2.10	46 17	2,265,784	429.12	9,436 84
July........ ..	408,373	77.34	1.700 71	781,874	148.08	3,256 28	565 191	107.04	2,353 81	772,691	146.34	3,218 02	37,254	7.06	155 24	2,565,383	485.86	10,684 06
August.........	516,891	97.90	2,152 81	1,078,626	204.28	4,492 13	620,197	117 47	2,583 16	837,136	158.54	3,486 30	37,850	7.16	157 45	3,090,700	585.35	12,871 85
September......	441,478	83.61	1,838 58	962,175	182.23	4,007 24	641,205	121.45	2,670 69	869,148	164.61	3,619 77	29,158	5.52	121 38	2,943,164	557.42	12,257 66
October........	515,257	97.58	2,145 77	982,566	186.09	4,092 12	617,435	116.93	2,571 29	975,094	184.68	4,061 18	37,689	7.15	157 23	3,128,041	592.43	13,027 54
November......	176,264	33.38	734 02	428,827	81.22	1,786 03	287,947	54.54	1,199 34	432,618	81.93	1,801 63	......	......	....	1,325,656	251.07	5,521 02
Grand totals....	3,479,172	658.91	$14,489 40	6,938,755	1314.18	$28,898 83	4,541,706	860.17	$18,915 14	6,519,254	1,234.68	$27,150 63	236,447	44.79	$984 91	21,715,334	4112.73	$90,438 91

Average number of miles cleaned each month...... 456.97 Average cost for each month $10,048.77

The district scheduled as Class "A" is composed of the streets, alleys, bridges and viaducts in the First Ward, or in other parts of the city leading to the First Ward, which were swept with four-horse sweeping machines, under contract with Jno. S. Cooper, at $5.49 per mile. The work of collection and removal of sweepings was performed by laborers at $1.50 per day, and carts at $3.00 per day each.

In 1888 the Baltimore & Ohio Railroad Company received all the sweepings from this district, and removed the same free of charge; whereas in 1889 the same company charged $1.00 each for unloading for small cars, and $1.25 for large cars, thus adding $1,350.00 to the expense of the Department. Another item of expense was the order of the City Council, in effect July 1, making eight hours a day's work, thus increasing the cost of labor twenty per cent.

RECAPITULATION OF ALL STREET CLEANING ETC., FOR 1889.

STREET CLEANING.	Cubic Yards Sweepings Removed.	Total Number Lineal Miles.	Average Number Lineal Miles per Month.	Total Cost.	Average Cost per Lineal Mile.
Under contract, Classes B, C, D, E and F, as per schedule	130,241	4,112.73	456.97	$90,438 91	$21 99
By the Department, Class A, as per schedule January 1 to May 1	17,150	759.98	189.99	*37,382 48	49 19
By the Department, Class A, as per schedule May 1 to December 31	40,932	1,986.54	248.32	50,745 43	25 54
TOTALS	188,337	6,859.25	643.18	$178,566 77	$26 03

*This amount includes the cost of sweeping ($5.49 per lineal mile) by the contractor.

PERMITS FOR OPENING STREETS.

Twelve hundred and ninety-three (1,293) permits were issued to sundry persons to open improved streets. A cash deposit covering cost of replacing pavements, etc., to their original condition, was made on each permit.

Openings made on improved streets by gas companies and sundry other corporations under general deposit, where the work of replacing pavements was done by contractors subject to inspection and acceptance of the Department, are not included herein.

A comparative statement and summary is given herewith:

MONTH.	Number of Permits Issued in 1888.	Number of Permits Issued in 1889.	MONTH.	Number of Permits Issued in 1888.	Number of Permits Issued in 1889.
January	58	64	August	160	139
February	61	23	September	158	161
March	74	90	October	148	130
April	163	133	November	151	84
May	164	135	December	99	83
June	162	125			
July	154	126	TOTALS	1,552	1,293

	1888.	1889.
Average number of permits issued each month	129	107
Number of permits issued for opening improved streets on which deposits were made (not including openings by gas companies and other corporations under general deposits)	1,552	1,293
Number of permits issued for opening unimproved streets	4,582	5,401
Totals	6,134	6,694

Amount of cash deposit made	$40,550 75	$36,822 50
Amount retained for cost of repaving and inspection	13,673 90	12,891 51
Amount rebated to depositors	20,483 75	18,265 99
Amount retained on permits not settled	6,393 10	5,665 00
Average amount of cash deposit	26 13	28 47
Average amount retained for costs	8 81	9 97

PERMITS FOR USE OF STREETS.

Nineteen hundred and twenty-seven (1,927) permits were issued to sundry parties to occupy streets for the purpose of depositing materials thereon during the construction of buildings.

The number of permits issued monthly, the amount of cash deposits, and revenue received for use of streets, is given in the following comparative statement:

MONTHS.	Number of Permits Issued in 1888.	Number of Permits Issued in 1889.
January	68	42
February	160	127
March	299	290
April	310	227
May	298	206
June	228	204
July	206	185
August	229	175
September	170	169
October	146	131
November	100	96
December	71	75
TOTALS	2,285	1,927

	1888.	1889.
Average number of permits issued each month	190	160
Amount of cash deposits made	$20,403 00	$15,715 00
Amount retained for use of streets as per Section 1,104 Municipal Code	8,045 00	5,284 50
Amount rebated to depositors	7,948 00	3,655 50
Amount retained on permits not settled	4,410 00	6,775 00
Average amount of cash deposits	8 93	8 15
Average amount retained for use of streets	3 96	2 74

PARKS.

In the work of taking care of parks, the money at the disposal of the Bureau was used in their maintenance. The amount of money expended for each park is shown in the book-keeper's financial statement.

HOUSE MOVING.

Thirteen hundred and fifty-six (1,356) permits to move buildings were granted, of which 1,190 were for frame buildings, 156 for brick, and ten for iron cable reels; the total frontage of which is 26,255 lineal feet. Of this number 219 were in the North Division, 272 in the South Division, 779 in the West Division, seventeen in Lake View, thirty in Hyde Park, and thirty-nine in Lake; 599 were one-story, 672 were two-stories, thirty-three three-stories, and three four-stories high.

Total cash receipts, $3,930.50.

The following table shows the number and character of the buildings moved each month, and the receipts from this service:

MONTH.	No. of Permits.	Division. North.	South.	West.	Feet Frontage.	Average Frontage.	Frame.	Brick.	Heights. 1-Story.	2-Story.	3-Story.	4-Story.	Cash Receipts.
January...	66	12	21	33	1,318	19.97	60	6	34	32	...	..	$194 00
February..	66	6	20	40	1,810	19.89	56	10	34	29	3	..	193 00
March....	163	31	36	96	3,167	19.80	137	26	80	78	4	..	411 00
April.....	159	35	31	93	3,214	20.21	137	22	64	90	5	..	451 00
May......	165	33	52	80	3,405	20.76	151	14	67	91	5	1	453 00
June......	119	20	17	82	2,405	20.38	106	13	52	63	2	1	343 00
July......	122	19	20	83	2,394	19.63	104	18	47	70	5	..	290 00
August ...	131	29	28	74	2,607	20.21	115	16	64	58	6	1	419 00
September.	96	11	8	77	1,904	20.04	85	11	45	49	1	..	236 00
October ...	94	10	20	64	1,839	19.99	82	12	43	48	1	..	276 00
November.	46	6	12	28	898	19.52	35	11	31	15	...	..	130 00
December.	43	7	7	29	821	20.02	37	6	17	23	1	..	139 00
TOTALS.	1270	219	272	779	25,282	20.07	1105	165*	578	646	33	3	$3,535 00

LAKE VIEW.

TOTALS	17	...	...	...	377	22.18	17	....	9	8	...	..	$61 00

HYDE PARK.

TOTALS.	30	...	...	...	596	19.87	29	1	12	18	...	..	$142 00

LAKE.

TOTALS.	39	...	...	...	......	......	39	....	...	...	...	..	$192 50

RECAPITULATION.

GRAND TOTALS.	1356	...	...	...	26,255	20.09	1190	166	599	672	33	3	$3,930 50

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* In this number is included ten iron cable reels.

SIDEWALKS.

The number of miles of sidewalk rebuilt during the year, including wood, stone and concrete, also miles of sidewalks repaired is shown in the following table:

DIVISION.	MATERIAL.			Total Miles.	Sidewalks Repaired.	Grand Total Miles.
	Wood.	Stone.	Concrete.			
North..............	20.32	3.18	.57	24.07	10.50	34.57
South...	45.92	15.34	.62	61.88	30.24	92.12
West...............	96.55	8.23	.74	105.52	54.00	159.52
TOTAL..........	162.79	26.75	1.93	191.47	94.74	286 21

The total number of miles of sidewalk under the control of the city and the West, South and Lincoln Park Commissioners at the close of the year, is given in the following table:

UNDER CONTROL OF	MATERIAL.			TOTAL MILES.
	Wood. Miles.	Stone. Miles.	Concrete. Miles.	
City	1,864.70	131.78	26.59	2,023.07
South Park Commissioners	....	11.35	......	11.35
West Park Commissioners	....	10.90	......	10.90
Lincoln Park Commissioners	....	2.17	......	2.17
	1,864.70	156.20	26.59	2,047.49
Wood Sidewalk replaced by stone and concrete				6.78
Total miles in city				2,040.77

STREET LAMPS.

At the close of the year there were, including those on bridges, viaducts, parks and boulevards, 779 oil lamps, 6,714 gasoline lamps, 24,878 gas lamps, and 403 electric arc and incandescent lights, as follows:

DIVISION.	OIL LAMPS.					GASOLINE LAMPS.		
	In City January 1, 1889.	Erected during 1889.	TOTAL.	Discontinued in 1889.	In City Dec. 31, 1889.	Erected during 1889.	Discontinued in 1889.	In City Dec. 31, 1889.
North, including Lake View...........	726		726	474	252	441	29	412
South, including Hyde Park and Lake..	1,553	NONE.	1,553	1,553	....	2,822	80	2,742
West, including Jefferson and Cicero...	4,086		4,086	3,559	527	3,855	295	3,560
TOTALS..................	6,365		6,365	5,586	779	7,118	404	6,714

DIVISION.	GAS LAMPS.					ELECTRIC, ARC & INCANDESCENT LIGHTS		
	In City January 1, 1889.	Erected during 1889.	TOTAL.	Discontinued in 1889.	In City Dec. 31, 1889.	Erected during 1889.	Acquired by Annexation.	In City Dec. 31, 1889.
North, including Lake View...........	4,118	656	4,774	22	4,752	27	30	57
South, including Lake and Hyde Park..	7,396	557	7,953	291	7,662	113	79	192
West, including Jefferson and Cicero...	11,823	1,486	12,809	345	12,464	154	....	154
TOTALS.........................	22,837	2,699	25,536	658	24,878	294	109	403

Total number of Street Lamps in the city December 31, 1889...............32,774.

The number of lamps glazed to replace broken glass was 74,807, in the different divisions of the city.

STREET RAILWAYS.

During the year the different companies have laid pavement on the portions of the streets occupied by their tracks as follows:

PAVEMENT.

CORPORATION.	Granite Block. Square Yards.	Cobble Stone. Square Yards.	Cedar Block. Square Yards.	Brick. Sq. Yards.	Total Sq. Yards.
N. Chicago St. R. R. Co.	....	1,422.22	37,166.21	....	38,588.43
Chicago City Ry. Co...	63,109.33	....	....	....	63,109.33
W. Chicago St. R. R. Co	11,443.10	....	27,768.44	....	39,211.54
Chicago Pass. Ry. Co..	....	....	....	....	....
TOTALS...........	74,552.43	1,422.22	64,934.65	....	140,909.30

Street Railway extensions were made by the different companies as follows:

CHICAGO CITY RAILWAY COMPANY.

STREET.	FROM	TO	Lineal feet	REMARKS.
Ashland avenue	Fifty-fifth	Sixty-ninth	9,240	Double track, Horse
Sixty-third	Ashland avenue	Leavitt	3,960	Double track, Horse
Sixty-ninth	Ashland avenue	Leavitt	3,960	Double track, Horse
Seventy-ninth	Vincennes avenue	Halsted	2,640	Double track, Horse
Vincennes avenue	Sixty-ninth	Eighty-first	8,414	Double track, Horse
Wentworth avenue	Sixty-third	Seventy-third	6,600	Double track, Horse
Wallace	Thirty-first	Thirty-ninth	5,280	Double track, Horse
TOTAL			40,094	7.59 miles.

WEST DIVISION STREET RAILROAD COMPANY.

EXTENSIONS.

STREET.	FROM	TO	Lineal feet	REMARKS.
Chicago avenue	Leavitt	**Colorado avenue....**	3,960	Double track, Horse
California avenue...	Chicago avenue	Division.......	2,640	Double track, Horse
Desplaines	Adams........	Washington ...	1,700	Double track, Horse
Desplaines	Washington ...	**Milwaukee avenue...**	2,200	Double track, Cable
Harrison	Pacific avenue .	State	1,180	Double track, Horse
Jefferson	Madison.......	Washington ...	420	Double track, Cable
Ogden avenue .	Albany avenue.	Millard avenue.	4,080	Double track, Horse
Twelfth.......	Ogden avenue .	**California avenue...**	3,240	Double track, Horse
Washington ...	Franklin......	Desplaines ...	2,640	Double track, Cable
TOTAL....	....	....	22,060	4.38 miles.

CHANGES.

Madison.......	State	Fifth avenue ..	1,520	**Changed from Horse to Single Cable.**
Madison	Jefferson	West Fortieth .	22,440	Horse double to Cable
Milwaukee avenue...	Desplaines	**Armitage avenue ...**	15,806	Horse double to Cable
Washington ...	State	Franklin......	1,840	Horse double to Cable
Fifth avenue...	Madison.......	Washington ...	420	Horse double to Cable
Eighteenth ...	Wood.........	Leavitt........	2,640	**Single Horse to Double Horse**
Armitage avenue....	**Milwaukee avenue...**	**California avenue. . .**	2,400	**Single Horse to Double Horse**
California avenue ...	**Armitage avenue....**	North avenue..	2,640	**Single Horse to Double Horse**
TOTAL....	....	....	49,706	9.42 miles.

NORTH CHICAGO STREET RAILROAD COMPANY.

STREET.	FROM	TO	Lineal feet	REMARKS.
Clark	**Lawrence avenue**....	City limits.....	10,938	Double track, Horse
Halsted.......	Clark	**Evanston avenue**....	4,400	Double track, Horse
Sheffield avenue	**Wrightwood avenue**..	Clark	5,568	Double track, Horse
Graceland avenue ...	**Evanston avenue**....	**Alexander avenue** ...	1,600	Single track, Horse
TOTAL....	....	....	22,506	4.22 miles.

STREET RAILWAYS—RECAPITULATION.

CORPORATION.	North Division.	South Division.	West Division.	Total Miles.
North Chicago Street Railroad Company.	27.40	2.86	1.57	31.33
Chicago City Railway Company........	....	41.07	....	41.07
West Chicago Street Railroad Company.	....	3.65	49.91	53.56
Chicago Passenger Railway Company...	....	2.31	10.78	13.09
Total miles......................	27.40	49.39	62.26	139.05

STREET RAILWAYS—RECAPITULATION—CONTINUED.

CORPORATION.	Horse Track.	Cable Track.	Total Miles.
North Chicago Railroad Company......	24.84	6.49	31.33
Chicago City Railway Company............	31.81	9.26	41.07
West Chicago Street Railroad Company........	44.60	8.97	53.56
Chicago Passenger Railway Company...........	13.09	....	13.09
Total miles............	114.34	24.71	139.05

Respectfully submitted,

L. E. McGANN,

Superintendent of Streets.

REPORT

OF THE

Bureau of Maps

CITY OF CHICAGO.

MAP DEPARTMENT.

CHICAGO, January, 1890.

HON. W. H. PURDY,

Commissioner of Public Works.

DEAR SIR :—I have the honor of submitting to you the Annual Report of the Map Department for the year 1889, accompanied by a map showing the growth of the city of Chicago through the various annexations from the original town to its present extension, and also by a historical sketch explanatory of said map.

The work performed by this Department during the year was as follows :

Prepared for—	Number of Plats.
Lamp Post Ordinances	882
Lamp Post Orders	588
Lamp Post Assessments	294
Street Improvement Assessments	447
Street and Alley Opening Assessments	104
Street and Alley Opening Ordinances	210
Sewerage Assessments	13
Street Engineer's Estimates	419
Surveys	101
Sidewalk Assessments	365
Law Department	465
Miscellaneous purposes	116
Total	4004

There have been 262 new subdivisions of real estate within the city limits entered upon the atlases in charge of this office, to-wit:

Atlases of the Map Department, House Number Atlases, Atlases of the Special Assessment Department, Atlases of the Street Department.

An atlas in duplicate, one for official use and one for house numbers, have been constructed on a scale of 100 feet to the inch, showing Sec. 25, 40, 14, formerly part of town of Jefferson, and all that territory within the new city limits west of Crawford avenue, or West Fortieth street, formerly part of town of Cicero.

The Department took charge of volumes II, III and IV of the official atlases of the former town of Lake. Volume I of same will have to be compiled in this office.

The Department also took charge of the house-numbering atlas of the former city of Lake View. An official atlas of Lake View was not in existence and will have to be prepared in this office.

The five volumes constituting the official atlases of the former village of Hyde Park were also transferred to this office. A house-numbering atlas of this village, just begun, will have to be completed in this Department.

From the town of Jefferson this Department received nothing but an incomplete set of tracings representing the territory of said town, and all the necessary atlases remain to be compiled.

In connection with the map accompanying this report, the following notes will be of general interest:

The present city of Chicago covers an area of about 174 square miles, or 111,360 acres.

The city is divided into thirty-four wards, each covering a territory as follows:

First ward	1.75 square miles
Second ward	1.5 square miles
Third ward	1.5 square miles
Fourth ward	1.75 square miles
Fifth ward	1.5 square miles
Sixth ward	2.75 square miles
Seventh ward	0.75 square mile
Eighth ward	0.75 square mile
Ninth ward	1.5 square miles
Tenth ward	6.5 square miles
Eleventh ward	1.25 square miles
Twelfth ward	3.00 square miles
Thirteenth ward	3.00 square miles
Fourteenth ward	3.00 square miles
Fifteenth ward	3.25 square miles
Sixteenth ward	0.75 square mile
Seventeenth ward	0.75 square mile
Eighteenth ward	0.75 square mile
Nineteenth ward	0.75 square mile
Twentieth ward	1.00 square mile
Twenty-first ward	1.00 square mile
Twenty-second w'd	0.75 square mile
Twenty-third ward	0.75 square mile
Twenty-fourth ward	1.00 square mile
Twenty-fifth ward	5.00 square miles
Twenty-sixth ward	5.75 square miles
Twenty-sev'th ward	29.5 square miles
Twenty-eighth w'rd	7.00 square miles
Twenty-ninth ward	6.00 square miles
Thirtieth ward	12.00 square miles
Thirty-first ward	18.00 square miles
Thirty-second ward	3.75 square miles
Thirty-third ward	28.5 square miles
Thirty-fourth ward	20.00 square miles

There are within the city limits two navigable lakes, Lake Calumet and Wolf Lake, and two navigable rivers with their branches—the Chicago river, with north and south branches, and the Calumet river, with Big and Little Calumet river.

The mileage of streets laid out within the new city limits is as follows :

Old city, including sections 35 and 36, 40, 13	737.84 miles.
Section 25, 40, 13	18.73 miles.
Annexed parts of former town of Cicero	78.39 miles.
Former city of Lake View	127.70 miles.
Former town of Jefferson	232.96 miles.
Former village of Hyde Park	521.10 miles.
Former town of Lake	330.56 miles.
Total	2,047.28 miles.
Boulevards laid out (taken from report of Park Commissioners)	59.00 miles.

The following parks and public squares are situated within the city :

Lake Front Park	41.00 acres.
Ellis Park	3.38 acres.
Washington Square	2.25 acres.
Dearborn Park	1.43 acres.
Congress Park	0.7 acre.
Union Square	0.5 acre.
Campbell Park	0.5 acre.
Aldine Square	1.44 acres.
Oak Park	0.25 acre.
Green Bay Park	0.25 acre.
Lincoln Park	250.00 acres.
Wicker Park	4.00 acres.
Union Park	14.3 acres.
Jefferson Park (old city)	5.5 acres.
Jefferson Park (former town of Jefferson)	5.00 acres.
Vernon Park	4.00 acres.
Humboldt Park	200.62 acres.
Garfield Park	185.87 acres.
Douglas Park	179.79 acres.
Jackson Park	586.00 acres.
Washington Park	371.00 acres.
Gage Park	20.00 acres.
Midway Plaisance	80.00 acres.
Shedd's Park	1.00 acre.
Logan Square	4.25 acres.
Holstein Park	2.3 acres.
Woodlawn Park	3.86 acres.
Groveland Park	3.4 acres.
Douglas Monument Square	2.02 acres.
Total	1,974.61 acres.

THE NEW YORK
PUBLIC LIBRARY

ASTOR, LENOX AND
TILDEN FOUNDATIONS.

THE NEW YORK
PUBLIC LIBRARY
ASTOR, LENOX AND
TILDEN FOUNDATIONS.

The geographical center of the present city of Chicago is located at the intersection of Ashland avenue and Thirty-ninth street. The distance between North Seventy-first street, being the northern city limits, and Hundred and thirty-ninth, being the southern city limits, is twenty-four miles. State street has the greatest extension north and south, running from North avenue to the southern city limits, a distance of eighteen miles. Running east and west Eighty-seventh street represents the greatest extension of the city limits, with 10.5 miles.

THE GROWTH OF CHICAGO.

THE "TOWN OF CHICAGO"

(John H. Kinzie, Gurdon S. Hubbard, Ebenezer Goodrich, John K. Boyer and John S. C. Hogan, first trustees,) was incorporated by act of February 11, 1835. It comprised all that territory covered by sections 9 and 16, north and south fractional section 10 and fractional section 15, in town 39 north, range 14 east of the 3rd principal meridian; "Provided, that the authority of the Board of Trustees of the said town of Chicago shall not extend over the south fractional section 10 until the same shall cease to be occupied by the United States."

THE "CITY OF CHICAGO."

Incorporated by act of March 4, 1837, comprised "the district of country in the county of Cook, etc., known as the east ½ of the southeast ¼ of section 33, township 40 north, range 14 east, and fractional section 34, township 40 north, range 14 east; also the east ¼ of sections 6, 7, 18 and 19, all of fractional section 3, and of sections 4, 5, 8, 9, and fractional section 10 (except the southwest fractional ¼ thereof, occupied as a military post, until the same shall become private property), fractional section 15; sections 16, 17, 20, 21, and fractional section 22, township 39 north, range 14 east."

FIRST EXTENSION OF CITY LIMITS.

Act of February 16, 1847, provides: "That the district of country in the county of Cook, etc., known and described as follows, to-wit: All that part of township 39 north, range 14 east, of the third principal meridian, which lies north of the north line of sections 27, 28, 29 and 30 of said township, and the east ½ of section 33, township 40 north, range 14 east, and fractional section 34, township 40 north, range 14 east, shall hereafter be included in, constitute, and be known by the name of City of Chicago."

SECOND EXTENSION OF CITY LIMITS.

Act of February 12, 1853, provides: "That the corporate limits and jurisdiction of the city of Chicago shall be and the same are hereby extended so as to embrace and include within the same the several tracts of land hereinafter described, which shall be deemed parts of the divisions of the said city named in connection therewith, as follows:

North Division: All those parts of sections 31 and 32, township 40 north, range 14 east, lying east of the center of the north branch of the Chicago river, and the west ½ of section 33, in same township and range.

South Division: All of fractional section 27, township 39 north, range 14 east, and so much of the shore and bed of the lake as lies within one mile east of said section, and all of that part of section 28, same township and range, lying south and east of the south branch of the Chicago river.

West Division: All those parts of sections 28, 29 and 30, township 39 north, range 14 east, lying north of the south branch of the Chicago river.

THIRD EXTENSION OF CITY LIMITS.

Act of February 13, 1863, provides: "The corporate limits and jurisdiction of the city of Chicago shall embrace and include within the same all of township 39 north, range 14 east, of third principal meridian, and all of sections 31, 32 and 33, and fractional section 34, township 40 north, range 14 east, together with so much of the waters and bed of Lake Michigan as lies within one mile of the shore thereof, and east of the territory aforesaid."

FOURTH EXTENSION OF CITY LIMITS.

Act of February 27, 1869, provides: "That the territorial limits of the city of Chicago shall be and are hereby extended as follows: That part of section 30, township 40 north, range 14 east, which lies west of the north branch of the Chicago river; sections 1, 2, 11, 12, 13, 14, 23, 24, 25, 26, and that part of sections 35 and 36 lying northwest of the center of the Illinois and Michigan canal, all in township 39 north, range 13 east, shall be and are hereby added to the city."

FIFTH EXTENSION OF CITY LIMITS.

Act of May 16, 1887, provides: "That section 36, township 40 north, range 13 east, town of Jefferson, shall be and is hereby added to the city."

SIXTH EXTENSION OF CITY LIMITS.

Act of April 29, 1889, provides: "That that part of sections 35 and 36 lying southeasterly of the center of Illinois and Michigan canal, in township 39, north of range 13, east of third principal meridian, in Cook county, Illinois."

Also, "that sections 3, 10, 15, and the east ¾ of sections 22, 27 and 34, lying northwest of the center of the Illinois and Michigan canal, in township 39, north range 13, east of the third principal meridian, etc."

Also, "that section 25, township 40, north of range 13, east of third principal meridian, etc., be and the same is hereby declared to be annexed to the incorporated city of Chicago."

SEVENTH EXTENSION OF CITY LIMITS.

July 15, 1889, an order was filed in the County Court of Cook county, declaring the result of a special election held June 29, 1889, by which the following territory, all situated in the county of Cook, Illinois, was annexed to the city of Chicago, viz.:

The east ½ of sections 4 and 9, township 39 north, range 13 east, of third principal meridian, in the town of Cicero; the city of Lake View, the village of Hyde Park, the town of Lake, and the town of Jefferson.

Respectfully submitted,

R. A. MANSTEIN,
Superintendent of Map Department.

REPORT

ON

Bureau of Special Assessment

CITY OF CHICAGO.

BUREAU OF SPECIAL ASSESSMENTS.

CHICAGO, December 31, 1889.

HON. W. H. PURDY,
Commissioner of Public Works.

DEAR SIR:—I submit herewith, in tabular form, a statement of special assessments made in this Department during the past year, with a summary of the estimated cost of the same, also the amount of special assessments made in each year during the past twenty nine years.

Five years ago, in making my report of the operations of this Department for the twelve months ending December 31, 1884, I felt it my duty to refer to the fact that a much larger number of street improvements had been ordered than it was possible to carry out, and begged leave to suggest what seemed to me to be the most feasible means of preventing a recurrence of such an undesirable condition of affairs. My suggestion provided for the appointment, as early as September in each year, of the Commissioner of Public Works, Fire Marshal and Superintendent of Streets as a special committee to prepare a list of streets which, in their judgment, should be improved during the next succeeding working season, with instructions to report as soon as possible. On the presentation of their report it should be referred to the Committees on Streets and Alleys for the three divisions of the city. Then if the several chairmen would have the lists published in all the daily papers, giving the names of the streets recommended to be improved with the character of the improvement, and invite all parties interested to be present at the meeting of the committee, when they were to be acted upon, an expression of opinion could be obtained in advance, and only such ordinances be recommended for passage as would meet the views of the property owners, thus saving the labor and expense of preparing a large number of assessments which have heretofore been made and afterwards ordered annulled, or delayed for an indefinite period.

It was not until they received the notice of the assessment that the most of the property owners in interest had the slightest knowledge of the contemplated improvement. In not a few instances they manifested their objections in so marked a manner that ordinances either indefinitely postponing the proposed improvement or annulling it altogether, were adopted without reference to committee and without debate.

Hon. D. C. Cregier, who was then the Commissioner of Public Works, in his annual report under date of March 16, 1885, concurred in the plan suggested, and said it "will not only facilitate the work of the Bureau and save time, but will curtail expense and otherwise prove a benefit to all interested."

Two years later I again ventured to call the attention of the Commissioner of Public Works, and through him the legislative department of the city government, to my suggestion of December 31, 1884. Great as was the necessity for it then, its urgency is much more pressing now. The addition of a vast amount of unimproved territory by the annexation of Hyde Park, Lake, Jefferson, Lake View, and part of Cicero, has doubled the labors of this Department. In all sections of the newly acquired territory are people clamoring for street improvements of various kinds, and the same is equally true on the outer edges of those wards which, previous to last July, formed the city boundaries. The aldermen, deluged with petitions and personal requests, respond to the solicitations of their constituents, and orders are given for the preparation of the requisite ordinances. These are soon passed, and the assessments follow. When the notices are received, many of those who wanted the improvement are, for the first time, enlightened as to its probable cost. Those who do not want it at once show their displeasure. Remonstrances pour in. An indefinite stay of proceedings, or a repeal, follows, and thus it goes, and will continue to go, from the beginning of one council year to the commencement of the next, unless some means be taken whereby the property owners interested in each proposed improvement can have an opportunity to give or withhold their sanction. That this picture is not overdrawn, is conclusively proved by the fact that an inspection of the records of the current council year will show that over 250 "stays" and "repeals" of proposed improvements have been ordered.

In view of our rapidly increasing population, and the absorption for mercantile, manufacturing and residence purposes of the unimproved acres within the municipal limits, and also the many street improvements that will be made in all portions of the city with direct reference to the World's Fair, to be held here two or three years hence, I trust it will not be regarded superfluous should I here intimate that it would be desirable for the Council to instruct the Commissioner of Public Works, Fire Marshal and Superintendent of Streets to prepare, during the summer vacation of the Council, the list of streets to be improved and make report thereof at the first meeting of the Council after vacation. The Committees on Streets and Alleys would then have a sufficient time wherein to consult with the property owners, and the Special Assessment Bureau would thus be relieved from the necessity of performing, at no small cost, a large amount of unnecessary labor.

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9426	West Polk	South Branch Chicago River	West Polk street viaduct	$ 702 21
9427	Oakley avenue	West Twelfth	West Fourteenth	13,992 72
9429	Twenty fifth place	Wentworth avenue	Halsted	42,418 17
9444	McHenry	Blanche	North avenue	8,878 37
9448	Morgan	Wright	West Fifteenth	2,808 68
9449	Wisconsin	Sedgwick	Larrabee	6,112 08
9450	Menomonee	Sedgwick	Larrabee	8,280 66
9451	Eugenie	Sedgwick	Larrabee	8,128 68
9452	Burling	Willow	Centre	11,017 58
9454	Sedgwick	North avenue	Eugenie	2,657 54
9472	East and west alley	Block 11	Wolcott's addition	1,097 28
9476	Alleys	Block 28	Wolcott's addition	470 48
9477	East and west alley	Block 15	Kinzie's addition	926 96
9479	West Eighteenth	Union	Halsted	2,504 15
9487	Ada	West Kinzie	Austin avenue	3,080 52
9491	Iowa	Wood	Lincoln	4,922 64
9492	Potomac avenue	Robey	Leavitt	12,191 51
9493	West Twentieth	Ashland avenue	Western avenue	94,201 63
9494	West Harrison	Rockwell	California avenue	14,460 10
9495	Armour	West Kinzie	West Ohio	9,548 72
9496	Nebraska	Throop	Ashland avenue	9,614 52
9497	West Eighteenth	Wood	Western avenue	49,216 94
9498	Hinman	Robey	Western avenue	50,187 78
9499	York	Ashland avenue	Wood	10,899 58
9500	West Monroe	California avenue	Sacramento avenue	9,667 76
9501	West Polk	Campbell avenue	Rockwell	5,111 99
9502	Spruce	Loomis	Laflin	8,788 06
9503	Sibley	West Taylor	Gilpin place	4,456 62
9528	Newton	Iowa	Augusta	5,558 55
9529	Currier	Augusta	Chapin	6,558 98
9530	Cork	Ashland avenue	Paulina	2,475 78

9531	West Fifteenth	Morgan	Centre avenue	12,737 45
9532	California avenue	West Harrison	West Twelfth	32,003 48
9533	May	West Eighteenth	West Twentieth	10,006 59
9534	Ada	West Jackson	West Erie	5,811 26
9535	West Nineteenth	Ashland avenue	Western avenue	83,107 29
9536	Johnson	Wright	West Sixteenth	5,550 06
9537	Macedonia	West Division	Ellen	4,874 39
9538	Allport	West Nineteenth	West Twenty-second	17,252 85
9539	Girard	Milwaukee avenue	Armitage avenue	87,988 87
9540	Selden	Wood	Lincoln	6,454 02
9541	Newton	Augusta	West Division	10,595 45
9542	Pearce	Desplaines	Halsted	4,559 57
9543	West Seventeenth	Union	Halsted	7,369 23
9544	East and west alley	Block 54	Kinzie's addition	1,946 41
9546	Town	Blackhawk	North avenue	6,875 10
9547	West Monroe	Albany avenue	Kedzie avenue	7,512 96
9548	Clifton Park avenue	West Twenty-second	West Twenty-sixth	17,445 16
9549	Alleys	Block 80	Wolcott's addition	1,598 61
9550	Clifton Park avenue	Ogden avenue	West Twenty-second	7,104 88
9552	University place	Rhodes avenue	Cottage Grove avenue	2,680 26
9556	Blucher	Wood	Lull place	2,673 94
9557	North and south alley	Block 4	Original Town	344 71
9558	Canal	West Lake	Fulton	3,202 58
9568	North avenue	Western avenue	California avenue	23,253 16
9569	Alleys	in Block 27	Wolcott's addition	946 99
9570	Diller	Fulton	Austin avenue	7,300 94
9571	Elk Grove	Wood	North avenue	9,905 57
9572	Alley	Thirty-third to Thirty-fourth	between Wabash and Michigan aves	6,978 69
9573	Fremont	Centre	Belden avenue	9,822 05
9574	West Twelfth	Ashland avenue	Ogden avenue	26,786 92
9637	Alley	Twenty-third and Twenty-fourth	between Michigan and Indiana aves	3,296 09
9638	Alley	Thirtieth to Thirty-first	between Indiana and Prairie avenues	1,572 62
9639	Walnut	Sacramento avenue	Homan avenue	30,703 35
9655	South one-half Madison	Oakley avenue	West line south lot 2, etc	942 44
9656	Millard avenue	Ogden avenue	West Twenty-sixth	22,538 07
9676	West one-half Peoria	West Lake	100 feet south	521 26

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT—CONTINUED.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9677	Alley	Thirty-fourth to Douglas avenue	between Wabash and Michigan aves.	$ 2,530 12
9678	Alley	Cottage Grove avenue to I. C. R. R.	bet. Woodlawn and Groveland parks	2,298 78
9679	Alaska	Larrabee	Town	3,316 20
9680	Walnut	California avenue	Sacramento avenue	6,507 12
9690	Armitage avenue	Milwaukee avenue	Elston avenue	38,515 01
9691	California avenue	Milwaukee avenue	Fullerton avenue	6,884 95
9692	Lawndale avenue	West Twenty-sixth	West Thirty-first	10,776 40
9693	Hamlin avenue	Ogden avenue	West Thirty-first	22,727 46
9694	Central Park avenue	West Twenty second	West Thirty first	20,877 16
9695	Archer avenue	Halsted	South fork south branch Chicago river	29,406 82
9697	West Ohio	Milwaukee avenue	Ashland avenue	1,980 65
9699	West Twenty-third	Central Park avenue	Hamlin avenue	5,850 50
9705	Desplaines	West Indiana	West Ohio	2,484 89
9706	Flournoy	Rockwell	Washtenaw avenue	5,050 38
9707	Washington place	North Clark	Dearborn avenue	2,154 81
9708	Illinois	North Market	Kingsbury	5,186 05
9717	Lexington	Rockwell	California avenue	9,741 71
9724	Bissell	Dayton	Garfield avenue	13,984 01
9725	Bissell	Webster avenue	Belden avenue	5,580 48
9726	Eda	State	Indiana avenue	8,547 07
9727	West Fifteenth	Western avenue	California avenue	28,016 77
9728	Fairfield avenue	West Twelfth	Ogden avenue	17,825 28
9729	Deering	Archer avenue	South branch Chicago river	13,402 18
9743	Thirty-sixth	Ellis avenue	Lake	2,463 88
9744	West Superior	Robey	Leavitt	9,000 97
9777	Twenty-seventh	State	Portland avenue	14,440 22
9778	Butterfield	Sixteenth	Twenty-second	14,823 77
9779	Nineteenth	State	Clark	7,564 24
9781	Western avenue	North avenue	Fullerton avenue	47,716 16
9782	Quarry	C. & A. R. R	Archer avenue	3,414 85
9783	Ogden place	Paulina	Wood	4,660 28

9784	Alley	Vincennes avenue	to its western terminus	1,431	16
9785	Alley	Twenty-sixth to Twenty-ninth	between Prairie and Calumet avenues	4,697	54
9787	Gardner	Vine	Halsted	8,938	35
9788	Shields avenue	Thirty-first	Thirty-third	13,291	74
9789	Twenty ninth	Stewart avenue	Hanover	1,519	47
9790	St. Louis avenue	West Kinzie	West Chicago avenue	21,346	69
9791	Washburne avenue	Robey	Oakley avenue	23,467	47
9792	Leavitt	West Twelfth	West Thirteenth	6,988	15
9793	Hoyne avenue	West Twelfth	West Thirteenth	7,002	77
9803	Holt	West Chicago avenue	Augusta	6,611	22
9804	Larrabee	North avenue	Webster avenue	13,852	47
9805	Dayton	Willow	Belden avenue	24,024	37
9807	Alley	S. ½ Block 48	Section 7, 39, 14	1,949	86
9808	West Twelfth	Kedzie avenue	Douglas and Central Park boulevard	41,415	46
9819	Ogden avenue	Albany avenue	Millard avenue	24,364	24
9820	West Sixteenth	Western avenue	California avenue	28,131	90
9821	Hoyne avenue	Twenty-second	Blue Island avenue	29,802	42
9822	Thirty-second	Laurel	Ullman	11,228	77
9823	Alley	Clybourn	Vedder	309	08
9824	Vine	Division	Vedder	1,804	32
9832	Locust	North Wells	North Market	4,137	28
9845	Thirty-eighth	Vincennes avenue	Cottage Grove avenue	7,900	90
9846	West Twelfth	California avenue	Kedzie avenue	18,271	32
9848	Whitehouse place	Wentworth avenue	Stewart avenue	10,197	63
9849	Shields avenue	Twenty-sixth	Thirty-first	24,966	90
9850	South La Salle	Archer avenue	Twenty-sixth	26,253	38
9859	Alley	Thirty-third to Thirty-fourth	between Wabash and Michigan aves	2,620	65
9862	Vine	Vedder	Rees	3,379	25
9863	Benton place	Wabash avenue	Eastern terminus	3,567	77
9865	Twenty-second	Portland avenue	Archer avenue	2,456	28
9866	Aldine	Egan avenue	Northern terminus	4,423	68
9867	Groveland avenue	Twenty-ninth	Northern terminus	3,454	32
9879	Fulton	Rockwell	California avenue	7,380	24
9880	Pearson	North Wells	North Franklin	2,027	71
9881	Avon place	Hoyne avenue	Western terminus	4,412	72
9882	East and west alley	Block 5	Stone's subdivision in Astor's add	644	98

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT—CONTINUED.

No. of Warr'nt.	NAME OF STREET.	FROM	TO	AMOUNT.
9883	Seward	Canalport avenue	Lumber	$7,477 13
9884	Napoleon place	Wentworth avenue	Stewart avenue	9,898 97
9885	Mark	Union	Halsted	6,579 06
9886	Alley	Thirty-first to Thirty-second	between South Park and Vernon aves	2,027 37
9887	Alley	Thirty-second to Thirty-third	between Michigan and Indiana aves.	2,144 13
9888	Alley	Thirty-first to Thirty-second	between Forest and Calumet avenues.	1,794 91
9889	Alley	Thirty-first to Thirty-second	between Calumet and South Park aves	1,797 24
9890	Alley	Thirty-second to Thirty-third	between South Park and Vernon aves.	2,194 76
9891	Alley	Thirty-second to Thirty-third	between Calumet and South Park aves	1,644 27
9892	Avon place	Robey	Hoyne avenue	4,343 07
9893	Johnson	West Eighteenth	Canalport avenue	11,166 05
9894	Alleys	E. ½ Block 88	C. T. subdivision W. ½ Sec. 27	1,063 14
9895	Alleys	W. ½ Block 88	C. T. subdivision W. ½ Sec. 27	1,051 35
9896	Alley	Twenty-sixth to Twenty-eighth	between State and Wabash avenue	2,881 32
9897	Alleys	Thirty-first to Thirty-second	bet. Rhodes and Cottage Grove aves.	1,152 78
9898	Alleys	E. ½ Blocks 81 and 82.	T. C. subdivision W. ½ Sec. 27	3,998 15
9907	Alleys	Block 6, Newberry's Addition and	Block 18 Wolcott's addition	1,233 41
9908	Alleys	Block 26	Wolcott's addition	1,113 03
9909	Alleys	Block 25	Wolcott's addition	1,130 70
9910	Alley	Thirty-third to Thirty-fourth	between South Park and Vernon aves.	1,963 71
9913	Chicago avenue	Pine	600 feet east	5,089 84
9914	Alleys	Thirtieth to Thirty-first	bet. Vernon and Cottage Grove aves.	3,368 71
9915	Alleys	Block 3	Bushnell's addition	1,488 37
9916	Blue Island avenue	Sixteenth street viaduct	West Twenty-first	13,121 88
9918	Alley	Thirty-second to Thirty-third	between Indiana and Prairie avenues.	1,645 15
9919	Paulina	West Twenty-first	Blue Island avenue	14,984 00
9921	Emerald avenue	Twenty-ninth	Thirty-first	16,742 60
9922	Alleys	Block 7, Newberry's Addition and	Block 12, Wolcott's addition	1,224 56
9923	Alley	Thirtieth to Thirty-first	bet. South Park and Vernon avenues.	1,222 29
9924	Alleys	W. ½ Block 98	C. T. subdivision W. ½ Sec. 27	2,925 94
9925	Alleys	East ½ Block 99	C. T. subdivision W. ½ Sec. 27	3,524 46

9926	Alleys	W. ½ Block 99	C. T. subdivision W. ½ Sec. 27	3,176 80
9927	Bellevue place	Rush	Western terminus	743 94
9928	Sedgwick	Division	Elm	1,630 93
9929	Hoyne avenue	West Chicago avenue	West Division	23,430 70
9932	Thirty-fourth	South Park avenue	Rhodes avenue	5,730 85
9958	Fulton	California avenue	Kedzie avenue	16,849 30
9967	Alleys	Block 1	Union Park addition	1,810 70
9969	Alleys	Block 3	S. fr'l ¼ Sec. 3, 39, 14	2,609 51
9970	Alleys	Block 7	S. fr'l ¼ Sec. 3, 39, 14	2,675 65
9971	Alley	Harrison to Polk	Fifth avenue and Sherman	1,682 70
9972	Alleys	Block 17	Butler, Wright and Webster addition	1,213 87
9973	Alleys	Block 16	Bushnell's addition	1,431 01
9974	Alleys	Block 4, Newberry's Addition and	Block 21, Wolcott's addition	1,372 40
9975	Alleys	Block 5, Newberry's Addition and	Block 20, Wolcott's addition	1,366 03
9976	Chestnut	North Market	its western terminus	1,311 75
9977	Washburne avenue	Ashland avenue	Wood	7,306 17
9999	West Nineteenth	Union	Halsted	6,854 45
10000	Emerald avenue	Thirty-first	Egan avenue	55,675 46
10001	Fairfield avenue	West Twelfth	Harvard	17,028 73
10002	Albany avenue	West Madison	West Lake	7,351 01
10004	West alley	Block 25	W. ½ W. ½ N. E. ¼ Sec. 17, etc	1,323 30
10005	West Eleventh	Throop	Ashland avenue	9,660 98
10006	South Dearborn	Twenty-seventh	Thirty-third	20,790 77
10009	Vernon avenue	Thirty-seventh	Egan avenue	10,536 90
10010	Twenty-seventh	Hanover	Wallace	13,853 18
10012	South Dearborn	Sixteenth	St. Charles Air Line R. R	1,225 63
10013	Alley	Twenty-ninth to Thirtieth	between Indiana and Prairie aves	3,202 99
10014	Thirty-fourth	Halsted	Laurel	13,447 11
10016	Alley	Van Buren to Congress	between Fifth avenue and Franklin	1,207 68
10030	Aberdeen	West Taylor	Damon	3,537 34
10032	Newberry avenue	West Taylor	West Twelfth	4,930 06
10033	Irving avenue	Fulton	West Kinzie	3,678 65
10034	Wendell	North Wells	Sedgwick	6,503 62
10035	Hinman	Blue Island avenue	Robey	16,563 80
10079	Alleys	E. ½ Blocks 21 and 30	S. E. ¼ Sec. 17, 39, 14	2,984 63
10080	Alleys (except east alley)	Block 9	W. ½ and W. ½ N. E. ¼ Sec. 17, etc	2,703 62

STATEMENT OF ASSESSMENTS FOR WOODEN BLOCK PAVEMENT—CONTINUED.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
10081	East and west alley	Centre avenue to Lytle	betwen Gilpin pl. and Macalister pl.	$ 1,708 45
10107	Alleys	Block 23	S. fr'l ¼ Sec. 3, 39, 14	546 90
10114	Emerson avenue	Leavitt	Wood	11,028 58
10115	Garfield avenue	Halsted	Racine avenue	18,621 38
10116	Alley	Thirty-second to Thirty-third	between Prairie and Forest avenues	1,645 08
10117	Alley	Thirty-second to Thirty-third	between Forest and Calumet aves	1,691 85
10118	Wabansia avenue	Ashland avenue	Robey	34,742 12
10119	West Clybourn place	Ashland avenue	Robey	21,934 00
10120	Burling	Centre	Garfield avenue	4,937 78
10121	Shober	West Division	North avenue	24,462 10
10156	North alley	Block 5	Ashland second addition	723 09
10157	Alley	Block 46	C. T. subdivision part Sec. 33, 40, 14.	459 17
10178	Alley	Eighteenth to Twentieth	between Wabash and Michigan aves	3,593 79
10198	West Twenty first	Union	Halsted	4,734 15
10202	Thirtieth	Portland avenue	Stewart avenue	6,477 40
10229	Ontario	North Franklin	Kingsbury	12,478 45
10241	Wabansia avenue	Coventry	Ashland avenue	7,796 03
10266	Mather	Canal	Clinton	2,345 41
10267	Rundell place	Aberdeen	Centre avenue	2,241 17
10275	Potomac avenue	Leavitt	Western avenue	13,838 00
10282	Alley	Twenty-fifth to Twenty-sixth	between Michigan and Indiana aves	2,201 45
10283	Ambrose	Wood	Leavitt	49,187 84
10284	Alleys	Block 28	C. T. subdivision part Sec. 17, 39, 14.	3,898 00
10294	Jane	Robey	Hoyne avenue	5,239 52
10295	Napoleon place	Stewart avenue	Wallace	20,752 53
10301	Van Horn	Robey	Western avenue	46,216 60
10304	Central Park avenue	Ogden avenue	Douglas Park boulevard	24,489 35
10313	Thirty-sixth	State	Indiana avenue	7,141 07
10315	Alley	Twenty-fifth to Twenty-sixth	between Wabash and Michigan aves	1,966 91
10318	Jefferson	West Harrison	West Twelfth	7,934 31
10319	Alley	Twenty-ninth to Thirtieth	Cottage Grove and Groveland aves	2,838 69

10330	Belmont avenue	North Clark	Lincoln	38,939 02
10335	Thirty-eighth	Wabash avenue	Wentworth avenue	10,257 86
10336	Maplewood avenue	West Division	North avenue	22,502 12
10337	Davis	North avenue	Wabansia avenue	5,559 60
10338	Basil avenue	North avenue	Bloomingdale Road	10,456 86
10339	Humboldt	North avenue	Armitage avenue	21,450 15
10340	Oakley avenue	North avenue	Wabansia avenue	5,405 57
10341	Armitage avenue	Milwaukee avenue	California avenue	12,981 29
10362	Exchange avenue	Eighty-seventh	Ninety-second	49,711 10
10391	Alley	Fifty-first to Fifty-second	between Woodlawn and Kimbark aves	1,722 76
10392	Mozart	North avenue	Armitage avenue	22,316 87
10393	Fairfield avenue	North avenue	Courtland avenue	17,160 10
10394	Alley	S. ½ Block 42	C. T. subdivision Sec. 7	2.567 18
10395	North Clark	Fullerton avenue	Diversey avenue	15,287 96
10424	Courtland	Western avenue	Kedzie avenue	48,761 76
10425	Heine	North avenue	Armitage avenue	22,351 09
10432	Commercial avenue	Ninetieth	Ninety-second	26,593 17
10433	Flournoy	Leavitt	Oakley avenue	4,264 21
10434	Hull	Eugenie	Menomonee	3,084 00
10490	Oakwood avenue	Drexel avenue	N. line Sec. 2	4,987 55
	TOTAL			$2,703,541 65

STATEMENT OF ASSESSMENTS FOR MISCELLANEOUS STREET AND ALLEY IMPROVEMENTS.

No. of Warr'nt	IMPROVEMENT.	NAME OF STREET.	FROM	TO	AMOUNT.
9459	Granite	Dearborn place	Randolph	Washington	$ 4,903 39
9473	Granite	Alley	Fifth avenue to Market	**between Madison and Monroe**	6,443 52
9474	Granite	Alley	Jackson to Van Buren	**between State and Wabash avenue**	3,904 11
9475	Granite	Alley	Block 3	Fract'l sec. 15 addition	1,015 85
9478	Granite	Court place	LaSalle	Fifth avenue	3,087 95
9504	Granite	Alley	Block 10	Fort Dearborn addition	2,254 02
9505	Curbing and filling	Bissell	Dayton	Garfield avenue	9,981 20
9506	Granite	Taylor	Pacific avenue	Fifth avenue	8,307 82
9551	Granite	Franklin	Quincy	Van Buren	10,730 48
9704	Granite	Clark	**Twelfth street viaduct approach**	Sixteenth	38,184 61
9711	Granite	Third avenue	Polk	Twelfth	26,764 68
9713	Granite	Taylor	State	Pacific avenue	18,480 72
9722	Granite	State	Jackson	Sixteenth	149,298 84
9741	Curbing and filling	West Twenty-second	Western avenue	**Chicago, Burlington & Quincy Railroad.**	75,092 57
9742	Granite	Clark	Polk	Viaduct approach	18,676 40
9745	Granite	Harrison	State	**Chicago, Rock Island & Pacific Ry**	15,486 26
9786	Curbing and filling	Astor	Schiller	Burton place	1,850 42
9798	Granite	Market	Lake	Randolph	14,977 25
9806	Curbing and filling	Burton place	North State	Lake Shore drive	1,565 76
9810	Asphalt	Nicollet avenue	California avenue	Sacramento avenue	16,802 65
9847	Curbing and filling	Twenty-third	State	Wentworth avenue	3,788 18
9864	Curbing and filling	Twenty-third place	Wentworth avenue	Archer avenue	8,584 45
9940	Granite	Randolph	Michigan avenue	Central avenue	1,687 62
9965	Granite	Monroe	Wabash avenue	Michigan avenue	6,687 55
9966	Granite	Harrison	State	Michigan avenue	18,106 50
9997	Granite	East and west alley	S. ½ Block 18	Fort Dearborn addition	874 12
9998	Granite	Sherman	Polk	Taylor	14,280 87
10003	Curbing and filling	Fairfield avenue	West Lake	**Chicago & North-Western Ry**	2,758 96
10007	Granite	Fourth avenue	Jackson	Harrison	15,780 66
10008	Granite	LaSalle	Lake	Randolph	7,085 99
10011	Granite	Third avenue	Jackson	Polk	41,472 90

10015	Granite	Harrison	**Chicago, Rock Island & Pacific Ry.**	South branch Chicago river	10,600 18
10113	Curbing and filling	Chatham court	Hobbie	Division	4,790 08
10410	Curbing and filling	Albany avenue	West Lake	West Kinzie	4,071 91
10435	**Curbing, grading and macadamizing**	North Fifty-ninth	Sheffield avenue	Evanston avenue	6,009 60
10436	**Curbing, grading and macadamizing**	Early avenue	Evanston avenue	Southport avenue	6,430 97
	TOTAL				$570,118 54

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9507	Eugenie	Sedgwick	Larrabee	$ 387 90
9508	Menomonee	Sedgwick	Larrabee	165 00
9509	Perry	Clybourn avenue	Fullerton avenue	237 80
9510	Fifth avenue	Thirty-first	Thirty-third	304 30
9511	Currier	Augusta	Chapin	361 10
9512	Sacramento avenue	West Lake	West Kinzie	525 00
9513	Francisco	West Lake	West Kinzie	972 80
9514	West Congress	Campbell avenue	Rockwell	238 50
9515	Johnson	Wright	Canalport avenue	984 80
9545	Diller	Fulton	Austin avenue	811 35
9553	West Twentieth	Ashland avenue	Western avenue	1,852 60
9554	West Harrison	Rockwell	California avenue	1,510 20
9555	Clark	Sixteenth	Archer avenue	529 00
9559	Hobbie	Sedgwick	Larrabee	272 80
9560	Sheffield avenue	Clybourn avenue	Fullerton avenue	3,352 50
9561	Centre	Sedgwick	Halsted	191 40
9562	Garfield avenue	Halsted	Racine avenue	276 80
9610	Keenan	Ashland avenue	Wood	303 60
9611	Girard	Milwaukee avenue	Armitage avenue	1,874 60
9612	Henry	Ashland avenue	Wood	199 00
9613	West Huron	Leavitt	Western avenue	1,375 50

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES—Continued.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9614	Hinman	Robey	Western avenue	$1,687 40
9615	Flournoy	Rockwell	Washtenaw avenue	709 80
9616	Fillmore	Western avenue	Rockwell	1,497 60
9617	West Erie	Leavitt	Western avenue	983 00
9618	Elk Grove	North avenue	Armitage avenue	1,578 05
9623	West Eighteenth	Wood	Western avenue	3,801 20
9624	Dudley	Augusta	West Division	599 40
9625	Dudley	North avenue	Armitage avenue	2,458 05
9626	Cicero court	West Van Buren	West Congress	320 25
9627	University place	Rhodes avenue	Cottage Grove avenue	177 50
9628	Wabansia avenue	Elston avenue	Ashland avenue	306 65
9629	Maplewood avenue	West Lake street	R. R. grounds	533 60
9630	Crystal	Leavitt	its eastern terminus	1,186 80
9631	Cypress	Kendall	West Twelfth	610 35
9632	California avenue	West Harrison	West Twelfth	3,162 85
9633	Blucher	Wood	Lull place	388 60
9634	Armour	West Kinzie	West Ohio	143 70
9635	Allport	West Nineteenth	West Twenty-second	1,011 10
9636	Ada	West Indiana	West Erie	390 65
9657	Selden	Wood	Lincoln	434 90
9658	Yeaton	Wood	Lincoln	491 65
9659	West Sixteenth	Canal	Halsted	572 85
9660	Shober	West Division	North avenue	1,505 20
9661	Newton	Augusta	Division	874 90
9662	Nutt	West Sixteenth	West Eighteenth	166 80
9663	Newberry avenue	Wright	West Eighteenth	1,178 75
9664	West Monroe	California avenue	Sacramento avenue	800 25
9665	Burling	Center	Garfield avenue	159 10
9666	Macedonia	West Division	Ellen	899 15
9667	West Nineteenth	Ashland avenue	Western avenue	3,277 65
9668	West Monroe	Albany avenue	Kedzie avenue	1,872 00

9669	Colorado avenue	Central Park avenue	Douglas Park avenue	1,117 40
9670	Utica	Fillmore	West Twelfth	825 60
9671	Town	Blackhawk	North avenue	152 25
9672	West Ohio	Robey	Western avenue	2,064 00
9673	West Polk	Campbell avenue	Rockwell	908 60
9674	Robey	West Eighteenth	Blue Island avenue	290 40
9675	Newberry avenue	West Taylor	West Twelfth	226 10
9682	Clifton Park avenue	Ogden avenue	West Twenty-sixth	5,324 90
9683	Millard avenue	Ogden avenue	West Twenty-sixth	3,402 55
9688	Western avenue	West Lake	West Indiana	955 50
9709	Butler	Twenty-fourth	Thirty-first	2,090 40
9714	Twenty-fifth place	Wentworth avenue	Halsted	1,175 85
9715	Twenty-fifth	State	Hanover	1,260 30
9716	Twenty-fourth	Wentworth avenue	Hanover	400 90
9719	Lexington	Rockwell	California avenue	1,957 00
9733	West Madison	Homan avenue	Crawford avenue	2,513 45
9734	Ogden place	Paulina	Wood	867 00
9735	California avenue	West Twelfth	Ogden avenue	954 10
9736	Halsted	South branch Chicago river	Egan avenue	4,340 80
9737	Eda	State	Indiana avenue	781 60
9738	Deering	Archer avenue	South branch Chicago river	904 80
9739	Lock	Archer avenue	South branch Chicago river	1,053 95
9740	Bissell	Dayton	Belden avenue	2,168 40
9899	Fairfield avenue	West Twelfth	Ogden avenue	1,587 00
9911	Chicago avenue	Pine	600 feet east	664 00
9917	Potomac avenue	Robey	Western avenue	1,431 50
9978	Vine	Vedder	Rees	166 50
9979	Gardner	Vine	Halsted	762 30
9980	Shields avenue	Thirty-first	Thirty-third	1,868 50
9981	West Fifteenth	Western avenue	California avenue	2,798 00
9982	St. Louis avenue	West Lake	West Chicago avenue	3,428 00
9983	Washburne avenue	Robey	Oakley avenue	1,050 00
9984	West Twenty-second	Western avenue	Trumbull avenue	9,550 50
9985	West Twelfth	Kedzie avenue	Douglas and Garfield boulevard	7,776 00
9986	Fairfield avenue	West Twelfth	Harvard	1,203 00
9987	Wood	West Sixteenth	Blue Island avenue	266 50

STATEMENT OF ASSESSMENTS FOR LAYING WATER SERVICE PIPES—CONTINUED.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9988	California avenue	Ogden avenue	West Twenty-second	$3,611 00
9989	Whitehouse place	Wentworth avenue	Stewart avenue	291 60
9990	Twenty-third place	Wentworth avenue	Archer avenue	1,325 00
9991	West Sixteenth	Western avenue	California avenue	2,949 50
9992	California avenue	West Twenty-second	West Twenty-sixth	1,767 50
9993	California avenue	West Division	North avenue	1,462 00
9994	Hoyne avenue	West Chicago avenue	West Division	2,716 00
10017	Albany avenue	West Madison	West Lake	272 00
10018	Fairfield avenue	West Lake	C. & N.-W. Ry	200 80
10019	Ellis avenue	Douglas avenue	Egan avenue	462 00
10020	Sawyer avenue	Ogden avenue	C., B. & Q. R. R	1,234 50
10021	Paulina	West Twenty-first	Blue Island avenue	105 60
10022	Flournoy	California avenue	Francisco	484 00
10023	Homan avenue	West Lake	Fulton	145 00
10024	Leavitt	West Thirteenth	Blue Island avenue	1,126 00
10025	Lincoln	West Twelfth	Blue Island avenue	900 00
10026	Vernon avenue	Thirty-seventh	Egan avenue	1,618 00
10027	South Dearborn	Sixteenth	St. Charles Air Line R. R	306 00
10028	Thirty-fourth	Halsted	Laurel	265 50
10029	Twenty-seventh	Hanover	Wallace	412 80
10031	Hope	Blue Island avenue	Morgan	572 00
10054	Shields avenue	Twenty-sixth	Thirty-first	659 20
10055	South La Salle	Archer avenue	Twenty-sixth	498 30
10056	Evans court	Union	Halsted	174 60
10057	Irving avenue	Fulton	West Kinzie	322 00
10058	Thirty-second	Laurel	Ullman	262 80
10059	Aldine	Egan avenue	Western terminus	465 00
10060	Twenty-eighth	Stewart avenue	Wallace	556 00
10061	Thirty-fourth	South Park avenue	Rhodes avenue	205 60
10062	Napoleon place	Wentworth avenue	Stewart avenue	250 00
10063	Hoyne avenue	West Twenty-second	Blue Island avenue	347 50

10064	Seward	Canalport avenue	Lumber	432	50
10265	Burling	Garfield avenue	Webster aveuue	218	00
10292	Western avenue	West Indiana	West Chicago avenue	3,786	00
10320	Van Horn	Robey	Western avenue	851	00
10321	West Twenty-first	Union	Halsted	140	00
10322	Illinois	North Franklin	Kingsbury	168	00
10323	Chatham court	Hobbie	Division	288	00
10324	Ambrose	Wood	Leavitt	1,960	00
10357	Central Park avenue	Ogden avenue	Douglas Park boulevard	4,365	00
10358	Albany avenue	West Lake	West Kinzie	506	00
10359	Grove court	Larrabee	Orchard	384	00
10360	Vincennes avenue	Forty-seventh	Fifty-first	2,392	00
10361	Forty-fourth	Cottage Grove avenue	St. Lawrence avenue	759	00
10368	Arch	Lyman	Thirty-first	126	00
10369	Thirty-sixth	State	Indiana avenue	231	00
10370	Thirty-eighth	Wabash avenue	Wentworth avenue	220	00
10371	Mather	Canal	Halsted	346	50
10372	Osborn	West Indiana	West Ohio	126	00
10373	Powell avenue	Milwaukee avenue	Fullerton avenue	2,185	00
10374	Thomas	Seymour	California avenue	2,184	00
10400	Lewis	Clybourn avenue	Belden avenue	1,364	00
10401	Rice	Robey	Leavitt	726	00
10402	Jane	Robey	Hoyne avenue	399	50
10403	Grand avenue	West Chicago avenue	Crawford avenue	11,147	50
10404	Maplewood avenue	West Division	North avenue	2,548	00
10405	Richmond	West Chicago avenue	West Division	2,912	00
10406	Courtland	Western avenue	Kedzie avenue	2,093	00
10407	Johnston avenue	California avenue	Humboldt Park boulevard	2,116	50
10408	Asylum place	Elston avenue	Leavitt	2,229	50
10437	Fairfield avenue	West North avenue	Courtland	1,196	00
10438	Oakley avenue	West North avenue	Wabansia avenue	384	00
10439	Gross avenue	North avenue	Courtland	1,426	00
10440	Davis	North avenue	Wabansia avenue	446	50
10441	Dania avenue	North avenue	Bloomingdale Road	782	00
10442	Washtenaw avenue	North avenue	Armitage avenue	1,633	00
10443	Basil avenue	West North avenue	Bloomingdale Road	792	00

STATEMENT OF ASSESSMENT FOR LAYING WATER SERVICE PIPES—CONTINUED.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
10444	Cleveland	Wallace	Winter	$ 276 51
10452	Exchange avenue	Eighty-seventh	Ninety-second	2,714 00
10453	Commercial avenue	Eighty-seventh	Ninety-second	2,496 00
10454	Humboldt	West North avenue	Armitage avenue	2,346 00
10455	Heine	West North avenue	Armitage avenue	2,392 00
10456	Mozart	West North avenue	Armitage avenue	2,070 00
10457	Washtenaw avenue	West Division	West North avenue	1,380 00
10458	Armitage avenue	Milwaukee avenue	California avenue	2,116 00
10459	Leavitt	North avenue	Wabansia avenue	470 00
10460	West Lake	Homan avenue	Crawford avenue	2,366 00
10461	Fifty fourth	Lake avenue	Drexel avenue	1,679 00
10462	Whipple	Colorado avenue	West Van Buren	598 00
10463	Dudley	West Chicago avenue	Augusta	828 00
	TOTAL			$219,827 71

STATEMENT OF ASSESSMENTS FOR LAYING PRIVATE DRAINS.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9460	Meridian	Desplaines	Halsted	$ 221 00
9461	Blanche	Fleetwood	Ashland avenue	176 00
9462	McHenry	North avenue	Blanche	102 00
9463	Twenty-fifth	State	Sanger	1,685 25
9464	Fifth avenue	Thirty-first	Thirty-third	255 00
9465	Butler	Twenty-fourth	Thirty-first	1,152 00
9466	Dean	Brigham	Paulina	192 00
9467	Damen	Sholto	May	208 00
9468	Julian	Ashland avenue	Wood	102 00

9469	Olive	West Taylor	West Twelfth	403 00
9470	Twenty-fourth place	Wentworth avenue	Hanover	238 00
9471	Astor	Schiller	Burton place	624 00
9516	Eugenie	Sedgwick	Larrabee	294 00
9517	Garfield avenue	Halsted	Racine avenue	273 00
9518	Larrabee	North avenue	Webster avenue	369 00
9519	Johnson	West Sixteenth	West Eighteenth	120 00
9520	Sheffield avenue	Clybourn avenue	Fullerton avenue	2,520 00
9521	North avenue	Western avenue	California avenue	900 00
9522	West Twentieth	Ashland avenue	Western avenue	1,246 00
9523	California avenue	West Harrison	West Twelfth	1,842 50
9524	Fillmore	Western avenue	Rockwell	742 00
9525	Flournoy	Rockwell	Washtenaw avenue	616 00
9526	Maplewood avenue	West Lake	R. R. grounds	352 00
9527	West Harrison	Rockwell	California avenue	1,035 00
9563	Dudley	North avenue	Armitage avenue	1,708 50
9564	Cicero court	West Van Buren	West Congress	143 00
9565	Crystal	Leavitt	Eastern terminus	1,044 00
9566	Dudley	Augusta	West Division	535 00
9567	Winchester avenue	Ogden avenue	West Polk	420 00
9575	Yeaton	Wood	Lincoln	308 00
9576	West Polk	Campbell avenue	Rockwell	630 00
9577	West Monroe	California avenue	Sacramento avenue	498 00
9578	Hinman	Robey	Western avenue	980 00
9579	Diller	Fulton	Austin avenue	496 00
9580	Allport	West Nineteenth	West Twenty-second	448 00
9581	Clifton Park avenue	Ogden avenue	West Twenty-sixth	3,441 00
9582	Millard avenue	Ogden avenue	West Twenty-sixth	2,960 50
9583	Nutt	West Sixteenth	West Eighteenth	160 00
9584	Town	Blackhawk	North avenue	182 00
9585	Johnson	Wright	West Sixteenth	294 50
9586	Cypress	Kendall	West Twelfth	290 00
9587	Robey	West Eighteenth	Blue Island avenue	824 00
9588	Burling	Centre	Garfield avenue	210 00
9589	University place	Rhodes avenue	Cottage Grove avenue	210 00
9590	West Monroe	Albany avenue	Kedzie avenue	1,038 00

STATEMENT OF ASSESSMENTS FOR LAYING PRIVATE DRAINS—Continued.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
9591	Utica	Fillmore	West Twelfth	$ 648 00
9592	Colorado avenue	Central Park avenue	Douglas Park boulevard	684 00
9593	Wabansia avenue	Elston avenue	Ashland avenue	368 00
9594	Newberry avenue	Wright	West Eighteenth	368 00
9595	Keenan	Ashland avenue	Wood	140 00
9596	Jane	Ashland avenue	Newton	140 00
9597	Walton place	North Clark	Dearborn avenue	231 00
9598	Shober	West Division	North avenue	1,024 00
9599	Selden	Wood	Lincoln	195 00
9600	Macedonia	West Division	Ellen	315 00
9601	West Erie	Leavitt	Western avenue	2,660 00
9602	West Ohio	Robey	Western avenue	1,376 00
9603	West Nineteenth	Ashland avenue	Western avenue	3,752 75
9604	West Huron	Leavitt	Western avenue	3,192 00
9605	Girard	Milwaukee avenue	Armitage avenue	1,584 00
9606	Elk Grove	Wood	Armitage avenue	1,088 00
9607	Newton	Augusta	West Division	504 00
9608	West Eighteenth	Wood	Western avenue	3,577 50
9609	Blucher	Wood	Lull place	280 50
9684	West Sixteenth	Canal	Halsted	504 00
9689	Western avenue	West Lake	West Indiana	1,295 00
9718	Lexington	Rockwell	California avenue	1,162 00
9780	Henry	Ashland avenue	Wood	208 00
9811	Bissell	Dayton	Belden avenue	1,320 00
9812	Eda	State	Indiana avenue	406 00
9813	Shields avenue	Thirty-first	Thirty-third	1,260 00
9814	Halsted	South branch Chicago river	Egan avenue	2,352 00
9815	California avenue	West Eleventh	Ogden avenue	752 00
9816	Fairfield avenue	West Twelfth	Ogden avenue	1,168 00
9817	Ogden place	Paulina	Wood	468 00
9818	Washburne avenue	Robey	Oakley avenue	616 00

9840	Alexander	Wentworth avenue	Stewart avenue	112 50
9912	Chicago avenue	Pine	600 feet east	496 00
9920	West Sixteenth	Ashland avenue	Wood	816 00
9964	Deering	Archer avenue	South branch Chicago river	627 00
9995	Sacramento avenue	West Lake	West Van Buren	825 00
9996	Hoyne avenue	West Twenty-second	Blue Island avenue	266 00
10065	West Fifteenth	Western avenue	California avenue	2,078 00
10073	California avenue	Ogden avenue	West Twenty-second	2,176 00
10074	Flournoy	California avenue	Francisco	304 50
10075	California avenue	West Twenty-second	West Twenty-sixth	2,400 00
10076	Fairfield avenue	West Twelfth	Harvard	952 00
10077	Shields avenue	Twenty-sixth	Thirty-first	435 00
10082	West Twelfth	Kedzie avenue	Douglas Park boulevard	4,914 00
10083	West Sixteenth	Western avenue	California avenue	2,504 25
10084	Sawyer avenue	Ogden avenue	C., B. & Q. R. R	960 00
10088	California avenue	West Division	North avenue	1,260 00
10154	Groveland avenue	Twenty-ninth	Northern terminus	210 00
10155	Vernon avenue	Thirty-seventh	Egan avenue	1,314 00
10182	Gardner	Halsted	Vine	119 00
10183	Aldine	Egan avenue	Northern terminus	289 00
10184	West Twenty-second	Western avenue	Trumbull avenue	7,017 50
10185	Fillmore	Western avenue	Rockwell	509 50
10186	Dudley	West Clybourn place	Wabansia avenue	180 18
10223	Western avenue	West Indiana	West Chicago avenue	5,916 00
10224	Seward	Canalport avenue	Lumber	299 00
10226	Fairfield avenue	West Lake	C. & N.-W. Ry	180 00
10227	Irving avenue	Fulton	West Kinzie	304 00
10228	Thirty-fourth	South Park avenue	Rhodes avenue	290 00
10260	Thirty-second	Laurel	Ullman	136 00
10261	Spring	State	Wentworth avenue	192 00
10262	Leavitt	West Thirteenth	Blue Island avenue	840 00
10263	Rockwell	West Twelfth	West Twenty-second	1,232 00
10264	Burling	Garfield avenue	Webster avenue	193 50
10278	Dashiel	Thirty-first	Egan avenue	3,064 50
10293	Hoyne avenue	West Chicago avenue	West Division	2,000 00
10302	Van Horn	Robey	Western avenue	645 00

STATEMENT OF ASSESSMENTS FOR LAYING PRIVATE DRAINS—CONTINUED.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
10325	Albany avenue	West Lake	West Kinzie	$ 414 00
10326	Asylum place	Elston avenue	Leavitt	2,218 75
10327	Dudley	West Chicago avenue	Augusta	675 00
10343	Heine	North avenue	Armitage avenue	3,027 50
10344	Oakley avenue	North avenue	Wabansia avenue	300 00
10345	Davis	North avenue	Wabansia avenue	351 50
10346	Mozart	North avenue	Armitage avenue	3,062 50
10347	Washtenaw avenue	North avenue	Armitage avenue	2,343 00
10348	Dania avenue	North avenue	Bloomingdale Road	1,566 00
10349	Humboldt	North avenue	Armitage avenue	3,088 50
10350	Basil avenue	North avenue	Bloomingdale Road	1,476 00
10351	Seymour	North avenue	Armitage avenue	1,044 00
10352	Archer avenue	Hoyne avenue	Leavitt	222 97
10353	Thirtieth	Wentworth avenue	Stewart avenue	203 00
10354	Courtland	Western avenue	Kedzie avenue	2.450 00
10355	Johnston avenue	California avenue	Humboldt Park boulevard	3,045 00
10356	Jane	Robey	Hoyne avenue	272 00
10363	Fletcher	Evanston avenue	Halsted	615 00
10364	Cleveland	Wallace	Winter	210 00
10365	Washtenaw avenue	West Division	North avenue	1,098 00
10366	Sulzer	Sheffield avenue	Halsted	1,120 00
10367	Armitage avenue	Milwaukee avenue	California avenue	1,568 00
10396	Rice	Robey	Leavitt	238 00
10397	Maplewood avenue	West Division	North avenue	2,272 00
10398	Gross avenue	North avenue	Courtland	2,343 00
10399	Rockwell	Norrh avenue	Armitage avenue	2,218 75
10445	Potomac avenue	Western avenue	California avenue	1,512 00
10446	Dickson	West North avenue	Bloomingdale Road	400 00
10447	Edgar	North avenue	Clybourn avenue	720 00
10448	Commercial	North avenue	Armitage avenue	1,104 00
10449	Rockwell	West Division	West North avenue	2,060 75

10464	Bonfield	Archer avenue	Thirty-first	900	00
10465	Wood	Archer avenue	Egan avenue	2,189	25
10466	Lewis	Clybourn avenue	Belden avenue	1,026	00
10467	Hoyne avenue	Armitage avenue	Asylum place	1,494	00
10468	Hervey	Wood	Robey	1,344	00
10469	Norwood avenue	Kedzie avenue	Homan avenue	1,494	00
10470	Millard avenue	West Twenty-sixth	West Twenty eighth	1,425	00
10471	California avenue	West Chicago avenue	West Division	2,212	50
10472	Thomas	Seymour	California avenue	1,859	25
10473	Napoleon place	Stewart avenue	Wallace	280	50
10474	Osborne	West Indiana	West Ohio	159	50
10475	Elston avenue	Fullerton avenue	Snow	1,248	00
10476	Leavitt	North avenue	Wabansia avenue	330	00
10477	Grove court	Larrabee	Orchard	273	00
10478	Hoyne avenue	West Thirteenth	West Twenty-second	310	00
10479	Central Park avenue	Ogden avenue	Douglas Park boulevard	2,976	00
10480	Thirty-fourth	Halsted	Laurel	210	00
10481	Lock	Archer avenue	South branch Chicago river	846	00
10482	Ambrose	Wood	Leavitt	6,103	25
10483	Twenty seventh	Hanover	Wallace	294	50
10484	Lydia	Desplaines	Halsted	450	00
10485	Flournoy	Leavitt	Oakley avenue	126	00
10486	West Lake	Homan avenue	Crawford avenue	2,016	00
10487	Paulina	Archer avenue	Thirty-eighth	1,808	00
	TOTAL			$186,807	40

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS.

No. of Warr'nt	Side of Street.	NAME OF STREET.	FROM	TO	AMOUNT.
9428	B	Ashland avenue	West Lake	West Chicago avenue	$ 699 52
9430	B	South La Salle	Thirty-third	Egan avenue	271 81
9432	B	Sheldon	West Madison	Arbor place	315 04
9438	B	Marshfield avenue	West Jackson	West Twelfth	741 02
9439	B	West Twenty-first	Centre avenue	Ashland avenue	518 06
9440	B	Huron	Kingsbury	Western terminus	544 92
9441	B	Cynthia	Ogden avenue	West Twenty-second	192 34
9442	B	Lawndale avenue	West Twenty-sixth	West Thirty-first	313 30
9443	B	Ogden place	Ogden avenue	Wood	194 88
9445	B	Desplaines	West Madison	West Ohio	1,589 03
9446	B	Thirty-second	Halsted	Benson	739 00
9447	S	West Division	Kedzie avenue	Homan avenue	283 67
9455	B	String	West Sixteenth	West Twenty-first	373 69
9456	B	Flournoy	Rockwell	Albany avenue	486 46
9457	B	Ruble	West Sixteenth	Canalport avenue	284 67
9458	B	Thirtieth	Prairie avenue	Wentworth avenue	660 30
9484	B	Burling	North avenue	Belden avenue	172 26
9485	B	Elston avenue	Armitage avenue	Fullerton avenue	660 83
9486	B	Colorado avenue	West Madison	West Jackson	944 50
9488	B	Currier	Wade	Chapin	143 72
9489	B	Francisco	West Chicago avenue	Linwood place	175 20
9490	B	Vernon avenue	Thirty-seventh	Egan avenue	250 58
9647	B	Flournoy	Hoyne avenue	Leavitt	119 12
9648	W	Western avenue	West Twenty-first	Blue Island avenue	2,489 77
9649	E	Western avenue	West Twenty-first	Blue Island avenue	1,414 06
9650	B	West Polk	Western avenue	Campbell avenue	212 52
9652	B	West Fifteenth	Ashland avenue	Wood	108 00
9653	B	Fulton	California avenue	Kedzie avenue	1,019 79
9654	B	West Fifteenth	Centre avenue	Ashland avenue	708 57
9685	N	Wabansia avenue	Elston avenue	Paulina	816 80
9702	B	Blue Island avenue	West Twelfth	West Sixteenth	485 78

9703	B	Dearborn	Sixteenth	Twenty-second	1,355 38
9825	B	Ashland avenue	Archer avenue	Egan avenue	3,213 90
9826	B	West Thirteenth	Wood	Ogden avenue	1,545 00
9827	B	Walnut	California	Homan avenue	1,315 44
9828	B	Douglas avenue	Laurel	Archer avenue	942 75
9829	B	Lime	Archer avenue	Twenty-seventh	288 92
9830	B	Leo	Archer avenue	Twenty-seventh	389 18
9831	B	Wood	North avenue	Armitage avenue	1,524 10
9833	B	Grenshaw	Claremont avenue	Western avenue	83 50
9834	B	Garfield avenue	Herndon	Lewis	136 00
9835	B	Dickson	West Division	North avenue	81 80
9836	B	Congress	Albany avenue	Kedzie avenue	397 50
9857	B	Twenty-fifth	Butler	Sanger	804 23
9858	B	Moore	Ellen	Division	83 94
9860	N	Armitage avenue	Mozart	Heine	101 70
9861	W	California avenue	Milwaukee avenue	Fullerton avenue	191 90
9868	E	Western avenue	West Sixteenth	West Twenty-first	1,244 50
9869	W	Western avenue	West Sixteenth	West Twenty-first	1,109 95
9941	B	Elk Grove	North avenue	Armitage avenue	202 32
9942	B	Elizabeth	Randolph	West Erie	391 80
9943	B	Halsted	Madison	West Twelfth	2,567 34
9944	B	Kedzie avenue	Van Buren	Central Park boulevard	1,684 78
9945	B	Meridian	Desplaines	Halsted	204 62
9946	B	West Clybourn place	Ashland avenue	Robey	445 41
9947	B	North Clark	Chicago avenue	North Park avenue	806 12
10078	B	Sullivan court	Lyman	Southern terminus	207 60
10089	B	Spring	State	Wentworth avenue	343 86
10090	S	West Twenty-sixth	Sacramento avenue	Homan avenue	296 21
10091	B	Hoyne avenue	Archer avenue	Thirty-fourth	253 06
10092	S	Arbor place	Ada	Ashland avenue	142 92
10093	N	Grand avenue	California avenue	West Chicago avenue	228 86
10094	B	Peterson	Robey	Hoyne avenue	67 20
10095	B	Washburne avenue	Washtenaw avenue	California avenue	199 53
10096	B	Trustee	West Kinzie	Northern terminus	111 68
10097	B	Thirty-seventh	Ashland avenue	Archer avenue	289 80
10098	B	Sheridan	West Division	North avenue	872 07

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

No. of Warr'nt	Side of Street.	NAME OF STREET.	FROM	TO	AMOUNT.
10099	B	West Twenty-third	Lawndale avenue	Hamlin avenue	$ 236 82
10100	B	West Twenty fifth	Western avenue	Rockwell	304 15
10101	B	West Twenty-fifth	Homan avenue	Millard avenue	361 55
10102	B	West Twenty-fifth	Troy	Kedzie avenue	187 82
10103	B	Marshfield avenue	Thirty-fourth	Thirty-seventh	293 60
10104	S	Parmelee	Hoyne avenue	Leavitt	199 77
10105	B	Austin avenue	Lincoln	Western avenue	377 67
10106	B	Francisco	West Twenty-fifth	Southwestern boulevard	96 00
10122	E	Farrell	Hickory	Chicago & Alton Railroad	97 00
10123	B	Crosby	Larrabee	Division	350 68
10124	B	Emerson avenue	Wood	Oakley avenue	697 43
10125	B	North avenue	Kedzie avenue	Crawford avenue	1,024 64
10126	B	Rockwell	Laughton	West Twenty sixth	136 80
10127	B	Kroll	Moore	Southern terminus	122 20
10128	B	Fifth avenue	Van Buren	Taylor	469 02
10129	B	Kendall	West Polk	West Taylor	215 95
10130	B	Albany avenue	Colorado avenue	West Kinzie	254 96
10131	S	Cork	Ashland avenue	Paulina	76 80
10132	B	Thirty sixth	Ellis avenue	Lake avenue	54 00
10133	B	Thirty-third court	Ashland avenue	Wood	107 30
10134	B	Oakley avenue	Kinzie	West Indiana	157 25
10135	B	Campbell avenue	West Polk	West Twelfth	218 13
10136	B	West Nineteenth	California avenue	Kedzie avenue	511 16
10137	S	West Monroe	Kedzie avenue	Spaulding avenue	209 65
10138	B	Deering	Thirty-first	South branch Chicago River	1,766 68
10139	B	California avenue	West Harrison	West Kinzie	683 93
10140	B	Ogden avenue	Paulina	Wood	272 22
10141	B	West Twentieth	Ashland avenue	Western avenue	1,148 94
10142	B	Arthur	West Sixteenth	West Eighteenth	117 20
10143	B	Wentworth avenue	Archer avenue	Napoleon place	914 56
10144	W	Kedzie avenue	Central Park boulevard	West Chicago avenue	521 35

10145	S	West Twenty-second	Brown	South branch Chicago river	1,476 55
10146	B	Wentworth avenue	Napoleon place	Thirty-third	698 03
10147	E	Drake avenue	Central Park boulevard	West Chicago avenue	873 62
10148	B	Douglas avenue	Archer avenue	Western avenue	322 52
10149	B	Paulina	Archer avenue	Thirty-eighth	329 80
10150	B	Thirty-fourth court	Wood	Archer avenue	142 21
10151	B	Pierce avenue	Kedzie avenue	Homan avenue	609 87
10152	B	Leavitt	Thirty-fourth	Archer avenue	604 69
10153	B	Troy	West Twenty-fourth	West Twenty-seventh	744 64
10179	B	Western avenue	Ogden avenue	West Sixteenth	2,740 12
10180	B	West Twelfth	Ogden avenue	Rockwell	999 85
10187	B	Peoria	Carroll avenue	Fulton	140 00
10188	B	Sawyer avenue	Ogden avenue	Douglas Park boulevard	505 56
10189	B	West Twelfth	Rockwell	California avenue	1,207 57
10190	B	Astor	Banks	Schiller	66 45
10191	B	Archer avenue	State	South branch Chicago river	4,519 28
10192	B	Gage	Douglas avenue	Egan avenue	441 54
10193	B	West Polk	California avenue	Campbell avenue	734 40
10194	B	Washburne avenue	Rockwell	Washtenaw avenue	248 88
10195	B	Colorado avenue	Homan avenue	Central Park avenue	114 00
10196	B	Leavitt	West Division	North avenue	273 44
10197	N	Bloomingdale road	Milwaukee avenue	Western avenue	149 76
10199	B	Waldo place	Desplaines	Halsted	92 00
10200	B	Weage avenue	Sheridan avenue	Kedzie avenue	381 15
10201	B	Beach avenue	Sheridan avenue	Kedzie avenue	364 65
10239	B	Thirty-fourth court	Halsted	Ullman	134 40
10240	B	Ullman	Thirty-first	Egan avenue	879 22
10242	N	West Thirteenth	Lincoln	Robey	515 00
10243	B	Leavitt	Milwaukee avenue	Fullerton avenue	458 76
10244	B	Coblentz	Robey	Ashland avenue	134 40
10245	N	Bloomingdale road	Ashland avenue	Wood	173 66
10246	B	Twenty-fifth place	Wentworth avenue	Halsted	589 81
10247	B	West Division	Hoyne avenue	California avenue	684 42
10253	B	Halsted	South branch Chicago River	Egan avenue	1,523 52
10254	N	West Chicago avenue	Hamlin avenue	Springfield avenue	231 00
10255	B	St. George's court	Milwaukee avenue	Stave	219 87

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

No. of Warr'nt	Side of Street.	NAME OF STREET.	FROM	TO	AMOUNT.
10256	B	Berlin	Myrtle	California avenue	$ 94 80
10257	B	Fox	Thirty-first	Thirty-third	110 97
10276	B	Twenty-fourth place	Hanover	Archer avenue	1,179 43
10277	B	Twenty-fourth place	Wentworth	Hanover	241 56
10279	B	Wentworth avenue	Thirty-third	Egan avenue	108 80
10280	B	Twenty-fifth	State	Sanger	2,458 83
10281	B	Butterfield	Twenty-second	Twenty-ninth	1,066 50
10303	N	Fillmore	Francisco	Kedzie avenue	834 27
10314	B	Canal	Harrison	West Taylor	1,400 85
10316	B	Lyman	Main	Thirty-first	640 34
10328	B	Perry avenue	Milwaukee avenue	Fullerton avenue	274 75
10329	B	West Ohio	Kedzie avenue	St. Louis avenue	1,007 77
10331	E	Kedzie avenue	Egan	Illinois and Michigan canal	204 88
10332	B	Eberhardt avenue	Fifty-ninth	Sixty-sixth	558 64
10333	B	Atlantic avenue	Eberhardt avenue	Homan avenue	70 00
10334	B	Ashland avenue	Sixty-third	Sixty-seventh	762 56
10389	N	Thirty-third	State	Cottage Grove avenue	228 16
10390	B	West Huron	Kedzie avenue	St. Louis avenue	662 19
10409	B	Albany avenue	West Twenty-fourth	West Twenty-sixth	271 81
10411	B	St. Louis avenue	West Lake	Chicago & North-Western Railway	162 43
10412	B	West Adams	Kedzie avenue	Homan avenue	225 85
10413	B	Washtenaw avenue	Van Buren	Lexington	800 00
10414	B	Sixty-fifth	Central Park avenue	Homan avenue	375 00
10415	B	Sixty-sixth	Central Park avenue	Eberhardt avenue	46 58
10416	B	West Twenty first	Western avenue	California avenue	755 00
10417	B	Sixty-first	Central Park avenue	Homan avenue	281 26
10418	B	Sixty-third	Central Park avenue	Ashland avenue	3,174 86
10419	B	Palasaide avenue	Central Park avenue	Homan avenue	252 19
10420	N	Pacific avenue	Central Park avenue	Eberhardt avenue	25 00
10421	S	Pacific avenue	Eberhardt avenue	Homan avenue	190 95
10422	B	Sixty-second	Central Park avenue	Homan avenue	162 00

10423	B	Sixtieth	Central Park avenue	Homan avenue	578 43
10426	B	Wright	North avenue	Wabansia avenue	229 48
10427	B	West Kinzie	Wood	Leavitt	86 40
10428	B	West Nineteenth	Western avenue	California avenue	1,090 67
10429	N	Rawson	McHenry	Elston avenue	113 10
10430	B	Dickson	North avenue	Bloomingdale road	359 07
10431	B	Elston avenue	North avenue	Armitage avenue	253 50
		TOTAL			$98,341 23

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS.

No. of Warr'nt	No. of Posts.	NAME OF STREET.	FROM	TO	AMOUNT.
9480	8	Lawndale avenue	West Twenty-fourth	West Twenty-fifth	$ 242 00
9481	3	Thirty-fourth	Vernon avenue	South Park avenue	90 75
9482	3	Locust	Sedgwick	Townsend	90 75
9483	8	Millard avenue	Twenty-fourth	West Twenty-fifth	242 00
9701	14	Park avenue	Western avenue	Falls	423 50
9723	6	West Twenty-second	Central Park avenue	Lawndale avenue	181 50
9730	3	Belden place	Eastern terminus	Western terminus	90 75
9731	2	Locust	Townsend	Milton avenue	63 00
9732	14	Washburn avenue	Ashland avenue	Wood	423 50
9837	63	Fulton	Rockwell	Homan avenue	1,716 75
9838	18	West Harrison	Rockwell	California avenue	508 50
9839	55	Western avenue	West Division	Armitage avenue	1,498 75
9851	50	Kedzie avenue	West Harrison	Central Park boulevard	1,362 50
9852	27	Belden avenue	Sheffield avenue	Southport avenue	816 75
9853	6	Albany avenue	West Madison	Colorado avenue	181 50
9854	10	Dayton	North avenue	Willow	302 50
9855	5	Osgood	Webster avenue	Belden avenue	151 25
9856	4	Butterfield	Twenty-sixth	Twenty-seventh	121 00
9870	7	Central avenue	Randolph	South Water	216 75
9871	2	Congress	Franklin	Market	65 50

STATEMENT OF ASSESSMENTS FOR LAYING PLANK SIDEWALKS—CONTINUED.

No. of Warr'nt	Side of Street.	NAME OF STREET.	FROM	TO	AMOUNT.
10256	B	Berlin	Myrtle	California avenue	$ 94 80
10257	B	Fox	Thirty-first	Thirty-third	110 97
10276	B	Twenty-fourth place	Hanover	Archer avenue	1,179 43
10277	B	Twenty-fourth place	Wentworth	Hanover	241 56
10279	B	Wentworth avenue	Thirty-third	Egan avenue	108 80
10280	B	Twenty fifth	State	Sanger	2,458 83
10281	B	Butterfield	Twenty-second	Twenty-ninth	1,066 50
10303	N	Fillmore	Francisco	Kedzie avenue	334 27
10314	B	Canal	Harrison	West Taylor	1,400 85
10316	B	Lyman	Main	Thirty-first	640 34
10328	B	Perry avenue	Milwaukee avenue	Fullerton avenue	274 75
10329	B	West Ohio	Kedzie avenue	St. Louis avenue	1,007 77
10331	E	Kedzie avenue	Egan	Illinois and Michigan canal	204 88
10332	B	Eberhardt avenue	Fifty-ninth	Sixty-sixth	558 64
10333	B	Atlantic avenue	Eberhardt avenue	Homan avenue	70 00
10334	B	Ashland avenue	Sixty-third	Sixty-seventh	762 56
10389	N	Thirty-third	State	Cottage Grove avenue	223 16
10390	B	West Huron	Kedzie avenue	St. Louis avenue	662 19
10409	B	Albany avenue	West Twenty-fourth	West Twenty-sixth	271 81
10411	B	St. Louis avenue	West Lake	Chicago & North-Western Railway	162 43
10412	B	West Adams	Kedzie avenue	Homan avenue	225 35
10413	B	Washtenaw avenue	Van Buren	Lexington	300 00
10414	B	Sixty-fifth	Central Park avenue	Homan avenue	375 00
10415	B	Sixty-sixth	Central Park avenue	Eberhardt avenue	46 53
10416	B	West Twenty first	Western avenue	California avenue	755 00
10417	B	Sixty-first	Central Park avenue	Homan avenue	281 26
10418	B	Sixty-third	Central Park avenue	Ashland avenue	3,174 36
10419	B	Palasaide avenue	Central Park avenue	Homan avenue	252 19
10420	N	Pacific avenue	Central Park avenue	Eberhardt avenue	25 00
10421	S	Pacific avenue	Eberhardt avenue	Homan avenue	190 95
10422	B	Sixty-second	Central Park avenue	Homan avenue	162 00

10423	B	Sixtieth	Central Park avenue	Homan avenue	578 43
10426	B	Wright	North avenue	Wabansia avenue	229 48
10427	B	West Kinzie	Wood	Leavitt	86 40
10428	B	West Nineteenth	Western avenue	California avenue	1,090 67
10429	N	Rawson	McHenry	Elston avenue	113 10
10430	B	Dickson	North avenue	Bloomingdale road	359 07
10431	B	Elston avenue	North avenue	Armitage avenue	253 50
		TOTAL			$98,341 23

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS.

No. of Warr'nt	No. of Posts.	NAME OF STREET.	FROM	TO	AMOUNT.
9480	8	Lawndale avenue	West Twenty-fourth	West Twenty-fifth	$ 242 00
9481	3	Thirty-fourth	Vernon avenue	South Park avenue	90 75
9482	3	Locust	Sedgwick	Townsend	90 75
9483	8	Millard avenue	Twenty-fourth	West Twenty-fifth	242 00
9701	14	Park avenue	Western avenue	Falls	423 50
9723	6	West Twenty-second	Central Park avenue	Lawndale avenue	181 50
9730	3	Belden place	Eastern terminus	Western terminus	90 75
9731	2	Locust	Townsend	Milton avenue	63 00
9732	14	Washburn avenue	Ashland avenue	Wood	423 50
9837	63	Fulton	Rockwell	Homan avenue	1,716 75
9838	18	West Harrison	Rockwell	California avenue	508 50
9839	55	Western avenue	West Division	Armitage avenue	1,498 75
9851	50	Kedzie avenue	West Harrison	Central Park boulevard	1,362 50
9852	27	Belden avenue	Sheffield avenue	Southport avenue	816 75
9853	6	Albany avenue	West Madison	Colorado avenue	181 50
9854	10	Dayton	North avenue	Willow	302 50
9855	5	Osgood	Webster avenue	Belden avenue	151 25
9856	4	Butterfield	Twenty-sixth	Twenty-seventh	121 00
9870	7	Central avenue	Randolph	South Water	216 75
9871	2	Congress	Franklin	Market	65 50

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS—CONTINUED.

No. of Warr'nt	No. of Posts.	NAME OF STREET.	FROM	TO	AMOUNT.
9872	3	Nineteenth	State	Dearborn	$ 95 75
9873	12	Illinois	St. Clair	1,200 feet east	363 00
9874	7	Bauwans	Blackhawk	Ashland avenue	216 75
9875	3	West Quincy	Clinton	Jefferson	95 75
9876	6	Armour	West Ohio	Chicago avenue	186 50
9877	5	Ada	West Indiana	West Erie	156 25
9878	2	Ada	West Kinzie	Austin avenue	65 50
9900	7	California avenue	Milwaukee avenue	Fullerton avenue	216 75
9901	8	Francisco	West Lake	Colorado avenue	227 00
9902	29	California avenue	West Harrison	West Twelfth	848 25
9903	7	Emerson avenue	Leavitt	Oakley avenue	216 75
9904	10	Allport	West Nineteenth	West Twenty-second	302 50
9905	7	Sloan	Noble	C. & N.-W. Ry.	216 75
9906	10	Fry	Rose	Ashland avenue	302 50
9930	3	Elm	North Market	Sedgwick	95 75
9931	3	Twenty-third	State	Dearborn	95 75
9933	11	Hoyne avenue	West Indiana	West Chicago avenue	332 75
9934	14	Cleaver	Bradley	Blanche	423 50
9935	4	Luce	Blackhawk	Northern terminus	123 50
9936	6	Cork	Ashland avenue	Paulina	181 50
9937	24	Holt	West Division	North avenue	706 00
9938	7	West Ohio	Lincoln	Robey	211 75
9939	5	Lessing	West Chicago avenue	C. & N.-W. Ry.	151 25
9948	24	Lyman	Main	Thirty-first	706 00
9949	14	Leavitt	Milwaukee avenue	Armitage avenue	423 50
9950	27	West Nineteenth	Robey	Western avenue	789 75
9951	7	Oakley avenue	West Thirteenth	West Fourteenth	211 75
9952	7	Flournoy	California avenue	Francisco	211 75
9953	28	Hinman	Robey	Western avenue	819 00
9954	8	West Nineteenth	Blue Island avenue	Ashland avenue	242 00
9955	15	West Monroe	Rockwell	California avenue	453 75

9956	8	Millard avenue	West Twenty-fifth	West Twenty-sixth	242 00
9957	7	Harvard	Western avenue	Campbell avenue	211 75
9959	17	Fairfield avenue	West Twelfth	Ogden avenue	514 25
9960	4	Lisle	Union	Halsted	123 50
9961	23	Newton	Iowa	West Division	680 75
9962	9	Ingraham	Elston avenue	Noble	272 25
9963	5	Iowa	Wood	Lincoln	151 25
9968	29	Dania avenue	West Division	North avenue	848 25
10036	24	Ullman	James	Douglas avenue	706 00
10039	4	Thirty-sixth	Ellis avenue	Lake	159 50
10040	14	Sacramento avenue	West Lake	West Van Buren	423 50
10041	25	Potomac avenue	Robey	Western avenue	731 25
10042	53	West Twentieth	Paulina	Western avenue	1,550 25
10043	2	Union place	West Congress	West Harrison	65 50
10044	13	Paulina	West Fifteenth	West Eighteenth	393 25
10045	8	West Monroe	Albany avenue	Kedzie avenue	242 00
10046	43	West Eighteenth	Wood	Western avenue	1,257 75
10047	3	West Seventeenth	Union	Halsted	95 75
10048	6	West Superior	Lincoln	Robey	181 50
10049	11	Augusta	Wood	Robey	332 75
10050	42	West Jackson	Sacramento avenue	Central Park avenue	1,228 50
10051	8	West Polk	Campbell avenue	Rockwell	242 00
10052	23	West Madison	Central Park avenue	Crawford avenue	680 75
10053	7	Hinman	Blue Island avenue	Robey	211 75
10066	6	Fay	West Erie	Pratt	181 50
10067	10	Elk Grove	Wood	North avenue	302 50
10068	29	Seymour	West Division	North avenue	848 25
10069	29	Girard	North avenue	Armitage avenue	848 25
10070	5	Leavitt	West Twelfth	West Thirteenth	151 25
10071	28	Shober	West Division	North avenue	819 00
10072	18	Emerson avenue	Wood	Leavitt	544 50
10085	8	Thirtieth	State	Wentworth avenue	242 00
10086	8	Menomonee	Sedgwick	Larrabee	242 00
10087	6	Sullivan	Sedgwick	Cleveland avenue	181 50
10158	13	Twenty-fifth	Hanover	Sanger	393 25
10159	33	Twenty-fifth place	Wentworth avenue	Halsted	965 25

STATEMENT OF ASSESSMENTS FOR ERECTING GAS LAMP POSTS—CONTINUED.

No. of Warr'nt	No. of Posts.	NAME OF STREET.	FROM	TO	AMOUNT.
10160	6	West Eleventh	Laflin	Ashland avenue	$181 50
10161	32	Roscoe	Robey	Western avenue	936 00
10162	2	Sibley	Vernon Park place	Macalister place	65 50
10163	14	Robey	Belmont avenue	Roscoe	423 50
10164	3	Thirty-second	Prairie avenue	Forrest avenue	95 75
10165	8	Webster avenue	Clybourn avenue	North branch Chicago river	242 00
10166	13	Emerald avenue	Twenty-sixth	Twenty-ninth	393 25
10167	9	Blue Island avenue	West Sixteenth	West Twenty-first	272 25
10168	7	Avon place	Robey	Hoyne avenue	211 75
10169	2	Pratt	Sangamon	Fay	65 50
10170	4	Alaska	Larrabee	Town	123 50
10171	8	Bissell	Dayton	Willow	242 00
10172	8	Orchard	Clybourn avenue	North avenue	242 00
10181	6	Town	Blackhawk	North avenue	181 50
10235	8	Albany avenue	West Madison	West Lake	242 00
10236	6	Astor	Schiller	Burton place	198 00
10237	3	Hammond	Eugenie	Tell court	95 75
10238	9	Perry	Clybourn avenue	Fullerton avenue	272 25
10248	3	Armour	West Indiana avenue	West Ohio	95 75
10249	2	Thirty-sixth	Cottage Grove avenue	Ellis avenue	65 50
10250	12	Gardner	Halsted	Vine	363 00
10251	62	Emerald avenue	Twenty-ninth	Egan avenue	1,689 50
10252	6	Cleveland	Wallace	Winter	198 00
10258	7	Irving avenue	Fulton	West Kinzie	211 75
10259	7	York	Ashland avenue	Armitage avenue	211 75
10270	12	Park avenue	Homan avenue	Kedzie avenue	363 00
10271	12	Clifton Park avenue	Ogden avenue	West Twenty-second	363 00
10272	2	Pearson	North Wells	North Franklin	65 50
10273	32	West Twelfth	California avenue	Kedzie avenue	936 00
10274	13	Stewart avenue	Sixty-ninth	Seventy-first	429 00
10298	16	Campbell avenue	West Polk	West Twelfth	484 00

10299	12	Washburn avenue	Robey	Oakley avenue	363 00
10300	8	Eda	Wabash avenue	Indiana avenue	242 00
10312	3	Monroe	Wabash avenue	Michigan avenue	95 75
10384	3	Seminary avenue	Fullerton avenue	Montana	95 75
	1,572	TOTAL			$46,500 25

STATEMENT OF ASSESSMENTS FOR ERECTING GASOLINE LAMP POSTS.

No. of Warr'nt	No. of Posts.	NAME OF STREET.	FROM	TO	AMOUNT.
9698	27	West Fourteenth	Lincoln	Oakley avenue	$268 65
10230	25	Hamburg	Robey	Western avenue	356 25
10231	7	Iowa	Lincoln	Robey	108 50
10232	14	Thirty-seventh	Halsted	Laurel	210 00
10233	11	Thomas	Wood	Robey	165 00
10234	12	Thirty-third	Halsted	Laurel	180 00
10268	6	Mather	Ogden avenue	Wood	96 00
10269	14	Thirty-sixth	Halsted	Laurel	210 00
10287	14	Marshfield avenue	Douglas avenue	Thirty-seventh	210 00
10288	22	Paulina	Douglas avenue	Thirty-eighth	319 00
10305	32	West Kinzie	West Forty-sixth	Robinson avenue	440 00
10306	13	Thomas	California avenue	Rockwell	195 00
10307	56	Hamlin avenue	West Chicago avenue	North avenue	756 00
10308	14	Crawford avenue	West Chicago avenue	Augusta	210 00
10309	48	Ridgeway avenue	West Chicago avenue	North avenue	648 00
10310	13	Harding avenue	West Chicago avenue	Augusta	195 00
10311	23	Carroll avenue	Sacramento avenue	Homan avenue	333 50
10317	27	Avers avenue	West Division	North avenue	384 75
10375	25	Fillmore	California avenue	Kedzie avenue	356 25
10376	27	Tinkham avenue	West Division	West Chicago avenue	384 75
10377	4	West Ohio	Harding avenue	Crawford avenue	64 00
10378	4	Metropolitan place	Harding avenue	Crawford avenue	64 00
10379	4	Chicago terrace	Harding avenue	Crawford avenue	64 00

STATEMENT OF ASSESSMENTS FOR ERECTING GASOLINE LAMP POSTS—CONTINUED.

No. of Warr'nt	No. of Posts.	NAME OF STREET.	FROM	TO	AMOUNT.
10380	5	John place	Halsted	Western terminus	$ 80 00
10381	2	Page	Austin avenue	Ferdinand	37 00
10382	13	Kosciusko	Robey	Leavitt	195 00
10383	11	Pleasant place	Leavitt	Western avenue	165 00
10385	32	West Forty-eighth	West Lake	West Chicago avenue	440 00
10386	14	West Randolph	West Forty-sixth	West Forty-eighth	210 00
10387	28	West Forty-seventh	West Lake	West Chicago avenue	399 00
10388	5	Ferdinand	Ashland avenue	Paulina	80 00
	552	TOTAL			$7,824 65

STATEMENT OF ASSESSMENTS FOR STREET AND ALLEY OPENING AND WIDENING.

No. of Warr'nt	Improvement.	NAME OF STREET.	FROM	TO	AMOUNT.
9435	O	Park avenue	through	Falls	$ 4,957 00
9436	OandW	Flournoy	Francisco	Sacramento avenue	5,987 45
9437	O	Alley	in block 3	Brand's addition	1,916 50
9621	O	Alley	between Emerson avenue and West Ohio	from its western terminus to Hoyne avenue	1,072 62
9622	OandW	Alley	between Falls and California ave.	from Park avenue to West Lake	2,858 88
9686	O	Alley	in S. ½ block 41	Section 7, 39, 14	1,160 36
9687	O	South Canal	Lumber	Archer avenue	183,316 18
9696	S	Winchester avenue	through	Ogden avenue	19,497 18
9710	W	Falls	Warren avenue	278.5 feet north	1,878 00
9712	W	Springer avenue	Ullman	Wall	1,176 94
9799	O	West Polk	East line blocks 12 and 13, G. W. Clark's subdivision	Sacramento avenue	3,940 00
9800	O	Alley	South line Park avenue	South line east and west alley	1,425 86

9801	O	Alley	South terminus of north and south alley in lot 2, block 38, in W. ½ section 21	Twenty-first	893 40
9802	O	Alley	Block 31	Wolcott's addition	1,997 30
9842	W	Lexington	Francisco	Sacramento avenue	2,239 36
9843	W	Rebecca	Rockwell	California avenue	2,793 00
9844	O	Alley	between Rebecca and West Fifteenth	from Rockwell to California ave.	917 11
10173	O	Alley	North line block 6	Assessor's division, W. ½ N. E. ¼ section 32, 39, 14	1,210 14
10174	O	Alley	North line block 6	North line of lots 1 and 6 in sub-block 1 of block 14, Assessor's division, W. ½ N. E. ¼ section 32, 39, 14	1,206 34
10175	O	Albany avenue	West Ohio	West Chicago avenue	7,221 08
10176	O	Alley	North line block 8	South line block 13 Assessor's division, W. ½ N. E. ¼ section 32, 39, 14	994 83
10177	O	Alley	through west part lot 1	Butterfield's addition	966 83
10295½	O	Alley	North line block 7	Assessor's division, W. ½ N. E. ¼ section 32, 39, 14	1,598 39
10296	O	Alley	W. ½ block 6	Mowry's subdivision	514 36
10297	O	Alley	E. ½ block 6	Mowry's subdivision	666 36
		TOTAL			$251,399 42

STATEMENT OF ASSESSMENTS FOR LAYING STONE SIDEWALKS.

No. of Warr'nt	Side of Street.	NAME OF STREET.	FROM	TO	AMOUNT.
9431	B	Quincy	Market	Franklin	$ 3,800 82
9640	N	Thirty-first	Michigan avenue	Cottage Grove avenue	5,114 44
9641	B	Huron	Rush	St. Clair	844 60
9642	B	Jackson	Michigan avenue	Market	12,338 40
9643	B	South Water	State	Michigan avenue	821 76
9644	B	Dearborn	South Water	Van Buren	10,923 94
9645	B	Randolph	South branch Chicago river	Michigan avenue	7,012 82
9646	B	Adams	South branch Chicago river	Michigan avenue	2,544 00
9651	B	Superior	North State	Eastern terminus	2,981 54
9700	S	Twenty-second	in front of Lot 3, Block 8	C. T. subdivision W. ½ section 27.	840 00
9720	B	South Water	State	Lake	12,010 79
		TOTAL			$59,232 61

STATEMENT OF ASSESSMENTS FOR ERECTING DYOTT CHAMPION LAMPS.

No. of Warr'nt	No. of Lamps.	NAME OF STREET.	FROM	TO	AMOUNT.
9681	101	West Adams	Centre avenue	Campbell avenue	$1,287 75
9809	46	Nicollet avenue	California avenue	Homan avenue	601 50
10037	14	Campbell Park	Leavitt	Oakley avenue	196 00
10038	89	Park avenue	Ashland avenue	California avenue	1,134 75
	250	TOTAL			$3,220 00

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
10108	Winter	125 feet south of Forty seventh	Fifty-first	$ 2,991 70
10109	Winter	Fifty-first	125 feet north of Garfield boulevard	3,250 75
10110	Fifty-third	Halsted	Winter	2,208 00
10111	Forty-ninth	Halsted	Winter	1,049 50
10112	Fifty-fourth court	Halsted	Morgan	1,622 60
10203	Alley	bet. Halsted and Emerald ave.	from Sixty-ninth to a point 33 feet south of south line of Sixty seventh	1,480 00
10204	Emerald	Sixty-ninth	Seventy-first	1,515 00
10205	Winter	Sixty-ninth	Seventy-first	1,583 50
10206	Sherman	Sixty-ninth	Seventy-first	1,583 50
10207	Sixty third court	Halsted	90 feet west of Winter	551 60
10208	Honore	Sixty-ninth	Sixty seventh	1,772 00
10209	Winter	Sixty-fifth	100 feet north of Sixty-seventh	1,651 60
10210	Sixty-fourth	Halsted	Sherman	1,445 50
10211	Winter	Sixty-third	Sixty-fifth	1,365 00
10212	Sixty-second	Halsted	east line of block 2, Hoyt, Canfield & Mattison's subdivision	920 80
10213	Sixty-fifth	Halsted	Sherman	2,055 50
10214	Englewood avenue	Wallace	west line lot 27, block 1, Hoyt, Canfield & Mattison's subdivision	698 00
10215	Englewood avenue	Halsted	a point opposite east line block 4, Hoyt, Canfield & Mattison's subdivision	920 80
10216	Honore	Sixty-ninth	Seventy-first	1,583 50
10217	Wright	Sixty-ninth	Seventy-first	1,649 00
10218	Dickey	Sixty-ninth	Seventy-first	1,649 00
10219	Stewart avenue	Sixty-ninth	Seventy-first	1,649 00
10220	Grant place	Sixty-ninth	Seventieth	754 00
10221	Atlantic	Fifty-second	130 feet north of Garfield boulevard	2,093 10
10222	Wright	Sixty-ninth	Sixty-seventh	1,877 00
10225	Forty-fourth	Vincennes avenue	first alley east of Grand boulevard	2,040 00
10285	Vincennes avenue	Fifty-first	center of Forty-seventh	8,278 00

STATEMENT OF ASSESSMENTS FOR CONSTRUCTING SEWERS—CONTINUED.

No. of Warr'nt	NAME OF STREET.	FROM	TO	AMOUNT.
10286	Calumet avenue	Fifty-first	south line of Forty seventh	$6,230 00
10289	Prairie avenue	Forty fifth	Forty third	4,029 00
10290	Forty-fourth	Evans avenue	100 feet east of Champlain avenue	1,270 00
10291	Langley avenue	Forty-fifth	119 feet south of Forty-third	1,930 00
10342	Madison avenue	Sixty third	Sixty-sixth	3,879 00
10450	North Normal Park-way	Wright	Stewart avenue	943 75
10451	Greenwood avenue	Sixty third	alley south of Sixtieth	3,232 79
10488	Layton	Wallace	347 feet east of Wright	1,625 75
10489	Mattison	Halsted	100 feet west of Winter	668 23
	TOTAL			$74,046 47

SUMMARY.

Total Assessments for Wooden Block Pavements:		
North Division	$ 268,498 66	
South Division	621,318 17	
West Division	1,813,724 82	$2,703,541 65
Total Assessments for Miscellaneous Street and Alley Improvements:		
North Division	$ 30,128 03	
South Division	441,264 42	
West Division	98,726 09	570,118 54
Total Assessments for Laying Private Drains:		
North Division	$ 10,777 50	
South Division	19,203 22	
West Division	156,826 68	186,807 40
Total Assessments for Laying Water Service Pipes:		
North Division	$ 11,378 75	
South Division	32,573 61	
West Division	175,885 35	219,837 71
Total Assessments for Street and Alley Openings and Widenings:		
North Division	$ 2,964 13	
South Division	189,502 82	
West Division	58,932 47	251,399 42
Total Assessments for Laying Plank Sidewalks:		
North Division	$ 2,160 37	
South Division	36,608 94	
West Division	59,571 92	98,341 23

Total Assessments for erecting Gas Lamp Posts:		
North Division	$ 5,878 00	
South Division	7,066 25	
West Division	33,556 00	
		$46,500 25
Total Assessments for erecting Gasoline Lamp Posts:		
North Division	$	
South Division	765 00	
West Division	7,059 65	
		7,824 65
Total Assessments for Laying Stone Sidewalks:		
North Division	$ 3,826 14	
South Division	55,406 47	
West Division	....	
		59,232 61
Total Assessments for erecting "Dyott Champion" Lamps:		
North Division	$	
South Division	....	
West Division	3,220 00	
		3,220 00
Total Assessments for the Construction of Sewers:		
North Division	$	
South Division	74,046 47	
West Division	....	
		74,046 47
Grand Total		$4,220,869 93

The following list shows the total of assessments made in each year since 1861:

For the year ending April 1, 1862	$ 42,635	49
For the year ending April 1, 1863	46,493	67
For the year ending April 1, 1864	389,169	31
For the year ending April 1, 1865	103,576	35
For the year ending April 1, 1866	802,574	56
For the year ending April 1, 1867	317,206	18
For the year ending April 1, 1868	1,354,436	48
For the year ending April 1, 1869	2,395,683	03
For the year ending April 1, 1870	2,836,852	48
For the year ending April 1, 1871	2,359,835	89
For the year ending April 1, 1872	62,222	25
For the year ending April 1, 1873	....	..
For the year ending April 1, 1874	749,460	27
For the year ending April 1, 1875	723,254	42
For the nine months ending January 1, 1876	60,585	72
For the year ending January 1, 1877	1,516,081	07
For the year ending January 1, 1878	124,498	48
For the year ending January 1, 1879	284,900	45
For the year ending January 1, 1880	588,963	44
For the year ending January 1, 1881	980,895	50
For the year ending January 1, 1882	1,227,169	71
For the year ending January 1, 1883	1,395,372	98
For the year ending January 1, 1884	2,232,757	04
For the year ending January 1, 1885	2,857,905	28
For the year ending January 1, 1886	2,889,544	80
For the year ending January 1, 1887	3,307,567	99
For the year ending January 1, 1888	3,160,474	67
For the year ending January 1, 1889	3,655,956	78
For the year ending January 1, 1890	4,220,869	93
Total for twenty-nine years	$40,706,944	22

Respectfully submitted,

H. J. JONES,

Superintendent Special Assessments.

Book-keeper's Statement

BOOK-KEEPER'S STATEMENT.

CHICAGO, December 31, 1889.

W. H. PURDY,
Commissioner of Public Works.

DEAR SIR:—I herewith respectfully submit statement in detail of the Receipts and Expenditures of your Department for the year 1889:

WATER FUND.

RECEIPTS.

Acc't Current Rents.		
Amount collected during the year for current water rents, assessed	$1,085,760 91	
Amount collected during the year for water rents, meter measurement	535,989 43	
		$1,621,750 34
Acc't Water Service Cocks.		
Amount received for tapping permits	$32,055 75	
Amount received for plumbers' licenses	302 00	
Carried forward,	$32,357 75	$1,621,750 34

Brought forward,	$32,357 75	$1,621,750 34
Amount received for one horse sold...	93 35	
Amount received for ferrules	3 50	
		32,454 60

Acc't Meter and Private Work.

Amount received for labor and material used in laying and repairing water supply pipes for elevator and general supply of water, also for changing location of hydrants, stopcocks, etc.	$40,303 71	
Amount received for meters, fittings and labor........	12,107 25	
Amount received for repairing meters.	3,575 01	
		55,985 97

Acc't North Pumping Works.

Amount received for scrap iron, brass, etc.	$791 22	
Amount received for labor	19 50	
Amount received by transfer from other accounts...	2,213 53	
		3,024 25
Carried forward,		$1,713,215 16

Brought forward,		$1,713,215 16
Acc't West Pumping Works.		
Amount received for scrap iron, rubber, barrels, etc......		524 67
Acc't South Side Pumping Works.		
Amount received from sale of building..............	$ 180 00	
Voucher for real estate deposited back...........	1,000 00	
		1,180 00
Acc't Water Pipe Extension.		
Received for water pipe, special castings and scrap iron sold........		2,411 36
Acc't Water Works Repairs.		
Received for labor and material used, by transfer from other accounts...		755 43
Acc't Water Works Shop.		
Received for labor and material.....		953 56
Miscellaneous Receipts.		
Amount received from delinquent water rents and tax redemption..		36 00
Carried forward,		$1,719,076 18

Brought forward,	$1,719,076 18	
Amount received for rent of Rookery lot....	35,000 04	
Amount received for double payment of water rents	321 88	
Amount of interest received from water fund investment............	35,011 20	
Amount received for premium on water loan bonds.	6,257 81	
Amount advanced by private parties to lay water mains....	22,323 68	
Amount received from F. C. Meyer, book-keeper, (discharged men's fund deposited back)...........	300 00	
Amount received as deposits for loan of hydrant wrenches	480 00	
Amount received from miscellaneous sources......	147 00	
Amount received from Lake View fund on account of salaries of water inspectors....	4,424 00	
Total receipts......		$1,823,341 79

EXPENDITURES.

Acc't Water Pipe Extension.

Paid for—

Labor	$166,167 41
Teaming	14,084 13
Pipe and special castings	302,104 90
Lumber	4,692 42
Brick	7,484 55
Iron and hardware	687 35
Hydrants and stop cocks	50,760 32
Plumbing	2,881 49
Cement	3,382 72
Lead	877 73
Sand	310 88
Packing and gaskets	820 40
Sewer pipe	186 30
Pitch	16 66
Valves	1,133 33
Paving	8,874 86
Paint and oil	100 20
Rope, etc	133 84
Hoop poles	22 50
Setting curbstone	261 15
Brooms and pails	21 50
Advertising, printing and stationery	201 37
Explosives	59 70
Testing iron	48 00
Furniture	3 45
Excavating rock	310 00
Iron beams	11 04
Tools and repairing	45 71
Carried forward,	$565,683 91

Brought forward,	$565,683 91	
Lanterns and torches	103 38	
Sewerage work	34 65	
Horse goods	7 00	
Car fare	100 29	
Furnaces	195 00	
Repairing wagon	12 85	
Boarding and stabling horses	1,310 22	
Repairing stove	2 00	
Small stores	13 02	
	$567,462 32	
Deduct material paid for in 1888	31,414 82	
Cash payments		$536,047 50

Acc't Water Works Repairs.

Paid for—		
Labor	$97,007 80	
Teaming	8,569 36	
Damages	2,220 13	
Stone cutting	333 24	
Sewer pipe	17 52	
Pails, cans, etc.	57 46	
Sand	92 62	
Iron and hardware	243 66	
Tug service	82 70	
Brick	1,139 70	
Paving	5,398 26	
Cement	763 97	
Water pipe and castings	3,531 08	
Testing scale	2 00	
Carried forward,	$119,429 50	$536,047 50

Brought forward,	$119,429 50	$536,047 50
Plumbing..........	871 99	
Gaskets...........	49 50	
Coal.............	116 46	
Stabling expenses..	438 75	
Paint and oil......	22 07	
Machine work at shop............	1,809 02	
Horse keep and shoeing	57 00	
Lead..............	700 00	
Lumber...........	2,516 87	
		126,041 16

Acc't Meter and Private Work.

Paid for—

Labor.............	$ 21,143 11	
Rebates...........	6,632 76	
Lumber...........	665 13	
Horse and wagon.	260 00	
Teaming..........	348 24	
Horse goods.......	32 50	
Valves and fittings.	659 71	
Car fare..........	33 02	
Meters,counters, etc	11,759 34	
Expressing and freight..........	2 59	
Water pipe and castings.........	5,470 83	
Brass and iron.....	7 97	
Lead..............	530 00	
Repairing harness..	31 75	
Pipe and fittings...	431 46	
Stabling expenses.	511 51	
Carried forward,	$48,519 92	$662,088 66

Brought forward,	$48,519 92	$662,088 66
Machine work at shop	2,664 28	
Matches and candles	32 76	
Sand	39 00	
Sewer pipe	45 00	
Plumbing	71 32	
Iron and hardware	79 85	
Machinist supplies	7 28	
Horse keep and shoeing	308 35	
Packing and gaskets	58 74	
Blacksmithing	82 30	
Printing and stationery	75 73	
Paint, oil and brushes	14 06	
Rope	7 00	
Water strainers	17 00	
Brick	643 75	
Rubber goods	176 00	
Tar	5 50	
Sealing wax	6 75	
Cement	317 56	
Tools	35 47	
Sawdust	13 00	
Sundries	9 12	
		53,229 74
Acc't North Pumping Works.		
Paid for—		
Coal	$80,943 12	
Waste and packing	722 82	
Salaries of engineers, firemen, labor, etc	52,994 57	
Carried forward,	$134,660 51	$715,318 40

Brought forward,	$134,660 51	$715,318 40
Pipe and castings..	1,013 19	
Gauge glasses.....	14 68	
Cement...........	114 75	
Pipe and fittings...	435 11	
Repairing boilers..	185 72	
Iron work.........	63 53	
Brooms, brushes, etc.	58 71	
Gas	365 40	
Copper pipe	336 85	
Covering steam cylinder	169 37	
Oil and grease.....	1,396 74	
Glass and glazing..	20 36	
Lumber	177 34	
Tools and hardware	74 77	
Advertising, printing and stationery	57 77	
Furniture........	16 25	
Cab hire...	12 25	
Breakwater	1,920 00	
Felt..............	2 35	
Freight..........	1 00	
Pitch	3 00	
Sprinkling	770 00	
Changing pump plungers........	12 00	
Repairing and covering dynamos..	32 55	
Testing engines...	100 00	
Covering steam pipe,	87 34	
Mats and Towels ..	4 60	
Lime and sand. ...	64 20	
Rubber goods.....	70 51	
Valves and gaskets,	113 65	
Carried forward,	$142,354 50	$715,318 40

Brought forward,	$142,354 50	$715,318 40
Lamps, wick, etc...	19 15	
Electric light lamps and supplies.....	369 14	
Soap and polish....	91 22	
Steam fitting......	57 75	
Engineer's supplies,	10 78	
Lubricators.	165 00	
Ice......	95 25	
Brick............	76 50	
Postage...........	5 60	
Fire brick and clay,	143 00	
Repairing scales...	12 98	
Brass and rubber tubing..........	69 19	
Belting...........	6 68	
Tin and antimony..	22 93	
Boiler compound...	131 97	
Iron and steel.....	6 06	
Stabling expenses..	610 71	
Rope............	12 33	
Machine work at shop........ ...	2,325 78	
		146,586 52

Acc't West Pumping Works.

Paid for—		
Labor........... .	$43,851 24	
Oil and grease.....	1,898 30	
Sand.............	2 00	
Teaming.........	3 15	
Coal.............	60,292 58	
Belting...........	46 49	
Terra cotta and tiles	174 33	
Carried forward,	$106,268 09	$861,904 92

Brought forward,	$106,268 09	$861,904 92
Machine work and blacksmithing...	1,318 46	
Advertising, printing and stationery,	16 00	
Cement and lime...	9 35	
Tools and repairing,	69 01	
Hose and couplings,	29 01	
Hardware.........	518 69	
Car fare...........	12 59	
Leather...........	7 18	
Ice................	39 50	
Steam and gas-fitting.............	1,072 29	
Waste and rope....	447 85	
Thermometers.....	12 00	
Testing smoke appliance.........	25 00	
Valves and packing	1,431 83	
Air chamber... ...	14 67	
Glass.............	5 10	
Fire brick and clay.	324 65	
Repairing pumps...	311 57	
Mats and towels...	10 50	
Soap and brushes..	151 72	
Livery	9 50	
Repairing boilers and other mach'ry	600 43	
Repairing lubricators......... ...	24 90	
Steel springs......	78 15	
Castings..........	343 06	
Grate bar castings.	121 19	
Charcoal box......	30 85	
Rubber goods.....	35 84	
Carried forward,	$113,338 98	$861,904 92

Brought forward,	$113,338 98	$861,904 92
Lumber	315 45	
Engineers' supplies.	14 00	
Tools and machinery	1,985 22	
Labor on buildings, etc	2,739 00	
Roofing	180 00	
Painting	36 00	
Flag and flag-staff.	103 00	
Glass and glazing	33 43	
		118,745 08

Acc't Central Pumping Works.

CONSTRUCTION.

Paid for—

Labor	$ 27,506 47	
Gallery	1,764 60	
Mud pipes	702 35	
Shop work	12 73	
Ground rent	207 52	
Oil and grease	44 21	
Hose and nozzle	6 00	
Cleaning vaults	30 00	
Iron floors	2,210 00	
Cement and lime	5,561 95	
Stone cutting	68 00	
Cut stone	10,050 00	
Iron work	135 16	
Dimension stone	1,698 33	
Inspecting machinery	695 33	
Engines and boilers (on account)	71,253 85	
Paving	23 50	
Castings	3,122 63	
Carried forward,	$125,092 63	$980,650 00

Brought forward,	$125,092 63	$980,650 00
Stone and gravel...	1,051 34	
Masonry and brick work............	23,799 00	
Brick.............	3,520 64	
Iron roof..........	13,540 00	
Drawing material..	10 00	
Damage to buildings............	106 05	
Sand..............	1,112 41	
Repairing tools....	292 60	
Glazing...........	621 89	
Lumber...........	1,394 13	
Doors.............	24 00	
Iron pipe..........	113 22	
Removing earth...	201 02	
Two testing tanks..	69 66	
Teaming..........	144 22	
Rope and packing..	31 78	
Repairing boilers..	26 65	
Coal..............	551 90	
Lanterns.........	6 00	
Freight..........	72 20	
Iron beams........	218 62	
Plumbing.........	3 50	
Pipe and fittings...	203 81	
Traveling expenses,	33 67	
Brooms and pails...	6 50	
Coke..............	3 00	
Advertising.......	10 65	
Extending smoke-stack...........	39 41	
Iron and hardware.	137 54	
Engineers' supplies,	27 61	
		172,465 65
Carried forward,		$1,153,115 65

Brought forward,		$1,153,115 65

Acc't South Pumping Works.

CONSTRUCTION.

Paid for—

Labor	$60,952 40	
Gravel	96 92	
Lumber	7,236 88	
Brick	7,655 63	
Teaming	11 49	
Grindstone	3 00	
Coal	873 58	
Plumbing	9 83	
Shop work	4 43	
Repairing pump	85 93	
Brooms and pails	1 50	
Wedges	61 00	
Stationery and blue prints	5 22	
Iron and hardware	859 79	
Dimension stone	1,898 60	
Roofing felt	3 34	
Sewer pipe	11 16	
Masonry	3,111 76	
Rope and blocks	126 58	
Removing earth	6,259 00	
Cement	5,836 74	
Engineers' supplies	46 15	
Driving piles	28,228 65	
Inspecting machinery	55 10	
Machine and iron work	477 76	
Tools and repairing	126 79	
Sand	1,778 34	
Carried forward,	$125,817 57	$1,153,115 65

Brought forward,	$125,817 57	$1,153,115 65
Oil	70 94	
Car wheels	12 64	
Repairing boiler	32 36	
Advertising	21 98	
Lanterns and globes	2 75	
Soap	3 80	
Waste and packing	151 11	
Pipe and fittings	45 81	
Stone	1,176 90	
		127,335 86

Acc't Water Service Cocks.

Paid for—

Ferrules and corporation taps	$2,837 86	
Rubber gaskets	9 60	
Labor.	31,349 36	
Oil	2 25	
Printing	27 65	
Cap screws	54 50	
Car fare	408 76	
Refunded for three service pipes	66 99	
Tapping supplies	96 27	
Plumbing	64 86	
Taps and drills	746 60	
Bibcocks and gaskets	16 80	
Couplings	1 30	
Permits refunded	10 80	
Stabling expenses	1,239 75	
Machine work at shop	127 35	
Hardware	4 83	
Carried forward,	$37,065 53	$1,280,451 51

Brought forward,	$37,065 53	$1,280,451 51
Fibre washers	25 00	
Blank books and printing	205 50	
Wagon hire	15 00	
Advertising	10 65	
		37,321 68

Acc't Miscellaneous Expenditures.

Paid for—

Labor	$11,717 19	
Horse keeping and shoeing	194 20	
Surveying parties	255 06	
Postage	276 20	
Advertising	323 09	
Car fare	347 98	
Traveling expenses.	241 86	
Repairing instruments	29 50	
Drawing material and stationery	687 64	
Tug service	498 00	
Map	15 00	
Rain gaugers	405 40	
Analyzing water	25 00	
Copying records	8 00	
One badge	2 00	
One stool	2 00	
Livery	9 00	
Legal services	1,528 00	
Sundries	60 92	
Shut-off charges refunded	13 75	
		16,639 79
Carried forward,		$1,334,412 98

Brought forward,		$1,334,412 98
Acc't Lake Tunnel Crib.		
Paid for—		
Labor	$2,701 95	
Tug service	2,760 00	
Meals	540 50	
Cement	11 85	
Fire brick	4 85	
Glass	7 13	
Stone screenings	6 10	
Advertising	29 06	
One pump	429 81	
Rope and chain	13 90	
Paint and oil	54 13	
Coal	196 75	
Blankets	13 18	
Rubber goods	37 34	
Use of scow	63 60	
Brass screens	201 00	
Brooms	5 32	
Metal	5 15	
Building gate and bridge	1,330 56	
Castings	22 02	
Gear wheels	11 55	
Lumber	48 36	
Waste and packing	12 47	
Tools and hardware,	21 82	
Machine work at shop	132 25	
Repairing boats	15 00	
Lamps and globes	10 91	
Engineers' supplies,	10 85	
		8,697 41
Carried forward,		$1,343,110 39

Brought forward,		$1,343,110 39
Acc't New Tunnels.		
Paid for—		
Water-gates, shafts, etc.	$5,266 02	
Constructing tunnels (on account),	210,431 34	
Lumber	172 73	
Rent of boiler	74 00	
Coal	254 56	
Hardware	37 45	
Pile driving	1,380 40	
Boring	52 87	
Labor	34,876 82	
Meals for laborers	28 75	
Tools	11 00	
Stationery and blue prints	37 71	
Moving building	115 00	
Candles	7 40	
Iron-work	184 18	
Diving	120 00	
Window sash	3 80	
Pipe and fittings	41 15	
Sand	12 15	
Paint and oil	41 49	
Machine work at shop	54 12	
Cement	79 60	
Moulds	7 50	
Copying records	4 00	
Lamps, globes, etc.	1 08	
Building platform	62 20	
Constructing breakwater	324 30	
Carried forward,	$253,681 62	$1,343,110 39

Brought forward,	$253,681 62	$1,343,110 39
Repairing instruments	10 50	
Stone	1,493 05	
Brick	45 00	
Furniture	5 99	
Engine supplies	38 08	
		255,274 24

Acc't New Four-mile Tunnel, Crib and Breakwater.

Paid for—

Engineering and inspecting	$ 535 53	
Printing specifications	10 00	
Constructing crib (on account)	191,650 85	
Constructing breakwater (on account)	28,173 20	
		220,369 58

Acc't Water Office Expenses and Salaries.

Paid for—

Blank books, printing and stationery	$ 1,957 71	
Car fare	1,645 18	
Postage	782 40	
Badges	20 00	
Tools and hardware	80 74	
Binding books and papers	232 43	
Scales	4 85	
Carried forward,	$4,723 31	$1,818,754 21

Brought forward,	$4,723 31	$1,818,754 21
Repairing safes....	24 75	
One water cooler...	9 50	
One city directory.	6 00	
Sundries..........	29 87	
	$ 4,793 43	
Salaries, collecting rents assessed...	40,877 93	
Salaries, collecting meter rents......	15,316 30	
*Salaries of water inspectors.......	33,865 77	
Salaries of assessors and draughtsmen.	17,746 19	
Salaries of shut-off men	18,008 50	
		130,608 12

Acc't Water Fund Proportional Office Expenses and Salaries.

Paid for—

Books, printing and stationery	$ 541 80	
Car fare...........	163 38	
Postage...........	141 90	
Tin boxes and lettering	9 43	
Type writing......	13 00	
Express charges...	4 70	
Furniture.........	10 00	
Newspapers.......	6 12	
Binding books and papers..........	16 00	
Carried forward,	$906 33	$1,949,362 33

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* See Water Fund miscellaneous receipts for credit on this account, $4,424.00.

Brought forward,	$906 33	$1,949,362 33	
Lithographing.....	592 47		
Annual report (on account)........	755 80		
	$2,254 60		
One-third salary of Commissioner, secretary, book-keeper and others	5,428 33		
		7,682 93	

Miscellaneous Accounts.

Paid for—

Real estate	$2,500 00		
Interest on water loan	255,937 00		
Advances refunded	25,154 78		
Refunded for hydrant wrenches..	230 00		
Water rents overpaid refunded ...	144 91		
Completion of lake crib protection ..	35,965 28		
Lead on hand	4,394 08		
Horse feed on hand.	98 24		
For petty cash expenditures.	1,000 00		
		325,424 29	
Total expenditures,			$2,282,469 55

SEWERAGE FUND.

RECEIPTS.

Amount received for drain permits....	$38,351 11	
Amount received for drain-layers' licenses..........	910 00	
		$39,261 11
Amount appropriated by City Council for cleaning sewers and catch-basins..........	$52,000 00	
Amount appropriated by City Council for repairing sewers and catch-basins..........	7,000 00	
Amount appropriated by City Council for raising catch-basins to grade....	40,000 00	
Amount appropriated by City Council for sewerage sinking fund....	500 00	
Amount appropriated by City Council river improvement sinking fund	500 00	
Amount appropriated by City Council for sewerage office salaries....	17,100 00	
Carried forward,	$117,100 00	$39,261 11

Brought forward,	$117,100 00	$39,261 11	
Amount appropriated by City Council for sewerage proportional salaries and office expense	7,100 00		
Amount appropriated by City Council for new sewers	346,025 18		
Amount appropriated by City Council for refunding money advanced	11,700 00		
		481,925 18	
Amount advanced by sundry parties for constructing sewers	$14,115 00		
Amount received from special assessment fund for constructing catch-basins	5,750 00		
Amount received for material sold	52 12		
Amount received for sewerage work for private parties	10,305 80		
		30,222 92	
Total receipts,			$551,409 21

EXPENDITURES.

Acc't Sewers, North Division.

Paid for—

Labor	$ 3,098 12	
Catch-basins	3,760 61	
Constructing sewers (contracts)	4,735 60	
Constructing sewers (Lake View)	9,994 10	
Printing and stationery	13 06	
Postage and car fare	156 17	
Paving	114 22	
Wooden covers	134 20	
Brick	9 74	
Cement	3 48	
Teaming	152 36	
		$22,171 66

Acc't Sewers, South Division.

Paid for—

Labor	$ 5,639 24	
Catch-basins	8,479 32	
Plumbing	620 15	
Constructing sewers (contracts)	47,700 58	
Constructing sewers (Hyde Park)	4,511 27	
Printing and stationery	19 83	
Paving	74 75	
Teaming	9 00	
Repairing gas main	24 34	
Wooden covers	823 50	
Brick	11 47	
Cement	5 53	
Carried forward.	$67,918 98	$22,171 66

Brought forward,	$67,918 98	$22,171 66
Sand..............	114 00	
Sewer pipe.... ...	135 55	
Teaming..........	247 00	
Repairing 35th street outlet.....	123 62	
Car fare and postage	234 55	
		68,773 70

Acc't Sewers, West Division.

Paid for—

Labor.............	$ 17,562 64	
Catch-basins	38,008 18	
Plumbing	2,717 21	
Constructing sewers (contracts)...	206,791 28	
Printing and stationery..........	19 56	
Repairing instruments...........	11 95	
Repairing sewer boat	13 00	
Excavating........	446 75	
Siphon......	110 00	
Paving............	576 42	
Two tanks........	210 00	
Wooden covers....	2,729 75	
Sewer brick......	568 73	
Cement	246 00	
Teaming	614 00	
Sewer pipe........	1,067 64	
Sand	225 83	
Car fare, postage, etc.	390 15	
	$ 272,309 09	
Deduct material paid for in 1888..	297 63	
		272,011 46
Carried forward,		$362,956 82

Brought forward,		$362,956 82

Acc't House Drains.

Paid for—

Labor	$22,557 20	
Re-laying drains	165 58	
Plumbing	12 15	
Paving	189 00	
Sewer pipe and junctions	10,877 12	
Sewer brick	2 50	
Depreciation of stock	75 00	
Teaming	455 00	
Damages	13 25	
Books, printing and car fare	1,072 42	
		35,419 22

Acc't Cleaning Sewers, etc.

Paid for—

Labor	$ 50,380 13	
Candles	43 90	
Brooms and pails	49 75	
Repairing tools	151 85	
Teaming	10,966 00	
Repairing flushing wagon	68 25	
Oil	6 11	
Rubber goods	25 60	
Nails	48 25	
Paving	50 00	
Depreciation of stock	274 73	
		62,064 57
Carried forward,		$460,440 61

Brought forward,		$460,440 61
Acc't Repairing Sewers, etc.		
Paid for—		
Labor	$ 5,708 72	
Repairing dock	235 28	
Plumbing	20 46	
Teaming	2,171 41	
Oil	11 13	
Paving	311 75	
Wooden covers	1,175 90	
Iron covers	529 76	
Brick	572 88	
Cement	300 83	
Sand	54 83	
Pipe	200 39	
Depreciation of stock	118 80	
		11,412 14
Acc't Intersections.		
Paid for—		
Labor	$ 22,581 33	
Paving	11 67	
Constructing culvert	15 38	
Wooden covers	3,999 03	
Iron covers	9,910 62	
Sewer brick	9,669 61	
Cement	4,376 34	
Sand	376 67	
Sewer pipe	426 20	
Teaming	1,949 00	
Depreciation of stock	89 06	
	$ 53,404 91	
Deduct material paid for in 1888	4,272 52	
		49,132 39
Carried forward,		$520,985 14

Brought forward,		$520,985 14	

Acc't Sewerage Office Salaries.

For—

Salaries of employes		17,080 00	

Acc't Sewerage Fund — Proportional Office Expenses and Salaries.

Paid for—

Books, printing and stationery.......	$ 758 13		
Binding papers....	34 20		
Annual report (on account)........	755 82		
Badges....	100 00		
Repairing safe.....	1 00		
Postage and car-fare	77 64		
Two city directories	12 00		
Newspapers	5 07		
Advertising.......	16 70		
One-third salary of Commissioner, secretary, bookkeeper and others	5,433 31		
		7,193 87	

Other Expenditures from Sewerage Fund.

Paid for—

River improvement sinking fund.....	$ 500 00		
Sewerage sinking fund..	500 00		
Sundry parties for money advanced.	21,209 57		
		22,209 57	
Total expenditure,			$ 567,468 58

APPROPRIATION FUND.

RECEIPTS.

Acc't Improved Streets.

Amount appropriated by City Council	$220,000 00	
Amount received for use of steam roller,	2,409 20	
Amount received for paving and inspecting	39,526 69	
Amount received for cleaning streets.	355 44	
Amount received for labor	117 38	
Amount received for iron pavement	1,977 98	
Amount received for lumber	9 70	
Amount received for stone	3 00	
Amount received for filling and grading	1,007 48	
Amount received for cement	9 13	
Amount received for ashes	15 39	
Amount received for iron beam	10 00	
Amount received for rent of polling place	10 00	
Amount received for setting curb	261 15	
		$265,712 54
Carried forward,		$265,712 54

Brought forward,		$265,712 54

Acc't Unimproved Streets.

Amount received for constructing sidewalks for private parties..........	$ 1,283 77	
Amount received for constructing sidewalks by special assessments.....	42,626 89	
Amount received for labor.....	3 75	
Amount appropriated by City Council..............	120,000 00	
		163,914 41

Acc't Street Permits.

Amount received for paving and inspecting...	$13,736 97	
Amount received for use of streets....	5,703 75	
	$19,440 72	
Deduct transfers from permit depositors' account,	3,792 65	
	$ 15,648 07	
Amount received from scale permits	51 00	
Amount received from vault permits...........	39 00	
Carried forward,	$15,738 07	$429,626 95

Brought forward,	$15,738 07	$429,626 95
Amount received from fire department.	3,122 61	
		18,860 68

Acc't House Moving Permits.

Amount received for permits issued		3,557 00

Acc't Public Buildings.

Amount appropriated by City Council	$87,043 00	
Amount received from Public Library for extra elevator service	514 37	
Amount received for scrap iron	43 19	
Amount received for old lamps sold,	3 90	
Amount received for empty barrels sold	2 25	
Amount received for labor	16 00	
		87,622 71

Acc't Public Benefits.

Amount appropriated by City Council	$331,539 64	
Amount received from Comptroller,	46,504 07	
		378,043 71
Carried forward,		$917,711 05

Brought forward,		$917,711 05
Acc't Street Lamps.		
Amount received for lamp posts...	$ 418 31	
Amount received for damages to posts and lamps..	43 87	
Amount received for tinware......	45 56	
Amount received for brass........	12 64	
Amount received for "Siemens" lamps...........	140 00	
Amount received for labor........	2 00	
Amount received from Comptroller,	20,007 03	
		20,669 41
Acc't Bridge and Viaduct Repairs.		
Amount appropriated by City Council.......	$105,000 00	
Amount received for lumber......	220 67	
Amount received for damages to bridges and viaducts...........	1,764 38	
Amount received for scrap iron....	194 58	
Amount received for labor........	123 62	
Carried forward,	$107,303 25	$938,380 46

Brought forward,	$107,303 25	$938,380 46
Amount received from C. & N.-W. Ry. toward maintaining State street viaduct....	400 00	
		107,703 25

Acc't Chicago Harbor.

Amount appropriated by City Council.........	$83,900 00	
Amount received for dredging.....	833 45	
Amount received for inspection....	4 50	
Amount received for tug service...	15 00	
		84,752 95

Acc't Adams St. Bridge.

Amount received from Chicago Passenger Ry. Co...		64,123 68

Acc't Eighteenth St. Viaduct.

Amount received from A., T. & S. Fe Ry. Co.......		4,329 00

Acc't Western Ave. Viaduct.

Amount received from C. & N.-W. Ry. Co..........	$3,125 89	
Carried forward,	$3,125 89	$1,199,289 34

Brought forward,	$3,125 89	$1,199,289 34
Amount received from C., M. & St. P. Ry. Co	382 54	
Amount received from C., St. L. & P. Ry. Co	405 53	
		3,913 96
Acc't Ashland Ave. Viaduct.		
Amount received from C. & N.-W. Ry. Co		14,144 92
Acc't Dearborn St. Viaduct.		
Amount received from C. & N.-W. Ry. Co		22,163 50
Acc't Thirty-fifth St. Viaduct.		
Amount received from Pennsylvania Co	$45,335 03	
Amount received from C. & W. Ind. Ry. Co	405 00	
		45,740 03
Acc't Electric Light Plant.		
Amount received from Comptroller.	$21,053 33	
Amount received from Murphy Iron Works for expenses	16 84	
Carried forward,	$21,070 17	$1,285,251 75

Brought forward,	$21,070 17	$1,285,251 75
Amount received from North pumping works.......	200 00	
Amount of voucher deposited back..	122 82	
		21,392 99

Acc't Gasoline Lamps.

Amount received from Comptroller.		38,125 05

Acc't Canal Pumping Works.

Amount appropriated by City Council	$56,185 00	
Amount received for labor........	90 00	
		56,275 00

Acc't Special Assessments.

Amount received from Special Assessment Fund for cost of making and collecting special assessments		108,860 73

Miscellaneous Appropriations and Receipts.

Amount appropriated by City Council for sidewalk intersections.....	$15,000 00	
Carried forward,	$15,000 00	$1,509,905 52

Brought forward,	$15,000 00	$1,509,905 52
Amount appropriated by City Council for sidewalks, general repairs......	15,000 00	
Amount appropriated by City Counci for Deering street bridge	15,126 25	
Amount appropriated by City Council for Dearborn street bridge ...	8,000 00	
Amount appropriated by City Council for Canal street bridge	5,000 00	
Amount appropriated by City Council for Carpenter (or Sangamon) street bridge	20,000 00	
Amount appropriated by City Council for Fourteenth street bridge....	75,000 00	
Amount appropriated by City Council for Taylor street bridge..........	20,000 00	
Amount appropriated by City Council for Madison street bridge..........	200,000 00	
Carried forward,	$373,126 25	$1,509,905 52

Brought forward,	$373,126 25	$1,509,905 52
Amount appropriated by City Council for Washington street bridge....	50,000 00	
For May and Kinzie street viaduct....	8,000 00	
For bridge-tenders' salaries	68,890 00	
For Ogden ditch dam	6,000 00	
For Fullerton avenue conduit....	19,640 00	
For morgue.......	10,000 00	
For public parks...	9,500 00	
For one-third salaries and office expense of Commissioner and others	7,100 00	
For City Engineer's office expenses..	500 00	
For map office expenses..........	350 00	
For salaries City Engineer's Department........	11,300 00	
For salaries of Street Department.....	42,620 00	
For salaries of Map Department.....	9,900 00	
For deficiency in collection of taxes	12,851 88	
		629,778 13
Carried forward,		$2,139,683 65

Brought forward,		$2,139,683 65	
Amount received from Comptroller for Webster avenue bridge	$ 10,000 00		
For West Division pound	32 30		
Amount received from private parties towards cost of Clark street foot-bridge	667 50		
Amount deposited by Thomas Byrne for paving, etc.	200 00		
Amount deposited on account of street permits	14,562 64		
Amount received for blue prints	12 66		
Amount received for inspecting iron on Clark street bridge	543 58	26,018 68	
Total receipts,			$2,165,702 33

STATEMENT OF ESTIMATES ISSUED DURING THE YEAR 1889 ON ACCOUNT OF BRIDGE AND VIADUCT CONSTRUCTION, PAYABLE BY RAILROAD COMPANIES TO CONTRACTORS DIRECTLY.

LOCATION.	CONTRACTOR.	RAILROAD COMPANY.	AMOUNT.	
Western avenue viaduct	Chicago Forge & Bolt Co	C., St. L. & P. R. R.	$ 8,197 77	
		C., M. & St. P. Ry	5,964 80	
				$ 14,162 57
Dearborn street bridge	Excelsior Iron Works	North Chicago Street Railway		2,914 00
Clark street bridge	Fitz Simons & Connell Co	U. S. Construction Co	$ 62,500 00	
	Variety Iron Works Co	U. S. Construction Co	69,875 00	
	Vulcan Iron Works	U. S. Construction Co	4,187 00	
				136,562 00
Thirty-fifth street viaduct	A. Gottlieb & Co	C. & W. I. Ry	$ 51,245 00	
	R. F. Wilson	C. & W. I. Ry	13,693 19	
				64,938 19
Twelfth street viaduct extension	Riter & Conley	A., T. & S. F. Ry	$172,248 00	
	Sackley & Peterson	A., T. & S. F. Ry	8,881 49	
				181,129 49
Dearborn street viaduct	Lassig Bridge & Iron Works	C. & N.-W. Ry		39,506 00
TOTAL				$439,212 25

EXPENDITURES.

Acc't Improved Streets.

Paid for—

Labor	$179,040	00
Lumber	24,344	51
Sweeping and cleaning contract. ...	103,851	93
Macadam, stone and screenings	5,422	00
Hardware.........	3,024	91
Gravel............	3,919	05
Tools and repairing	1,654	55
Globes and lanterns	76	40
Paving-blocks.	6,018	12
Books, printing and stationery.......	410	68
Glass.............	3	56
Paving............	4,103	83
Cement...........	829	96
Removing dirt	1,318	00
Tar and tar-paper .	131	26
Repairing buggies .	153	75
Sprinkling	296	44
Paint and oil	87	51
Teaming..........	83	50
Hose and packing .	19	59
Salt		95
Repairing steam rollers	301	55
Coal.........	202	00
Stove.............	9	00
Blacksmithing.....	11	05
Earth filling and grading.........	1,368	48
Carried forward,	$336,682	58

Brought forward,	$336,682 58	
Storage and freight	243 78	
Rebate	134 50	
Repairing instruments	9 50	
Repairing fence	34 00	
Car fare	247 43	
Resetting curb	683 68	
Ground rent	50 00	
Sundries	5 20	
		$338,090 67

Acc't Unimproved Streets.

Paid for—		
Lumber	$ 34,990 62	
Labor	108,260 30	
Slag and screenings	1,437 40	
Tools and repairs	220 82	
Hardware	1,731 31	
Car fare	166 34	
Blacksmithing	83 95	
Drawing material . .	15 78	
Books, printing and stationery	69 61	
One plow	14 25	
Ground rent	549 34	
Cedar posts	54 00	
Paving blocks	77 00	
Cleaning vaults	12 00	
Curbing	74 95	
Ashes	377 00	
Teaming	72 50	
		148,207 17
Carried forward,		$486,297 84

Brought forward,		$486,297 84

Acc't Sidewalk Intersections.

Paid for—

Labor.	$14,747 02	
Lumber.	4,713 08	
Paving.	70 02	
Resetting curb.	7 00	
Car fare and postage	242 10	
		19,779 22

Acc't Sidewalks General Repairs.

Paid for—

Labor.	$17,669 75	
Lumber.	3,892 48	
One city directory.	6 00	
Postage and car fare	442 15	
		22,010 38

Acc't Public Buildings.

OPERATING.

Paid for—

Coal.	$26,250 39	
Labor	22,962 46	
Hardware	45 61	
Changing dynamos, balance.	1,300 00	
Repairing dynamo engine.	105 00	
Steam-fitting.	485 38	
Electric lamps and other supplies. . .	3,212 49	
Tank indicator.	25 00	
Signs.	6 40	
Carried forward,	$54,392 73	$528,087.44

Brought forward,	$54,392 73	$528,087 44
Valves and packing	161 38	
Repairing machinery	1,654 43	
Belting	174 92	
Engineers' supplies	262 29	
Gas	13 40	
Tools and repairing	86 43	
Grate bars	112 50	
Boiler compound	63 30	
Iron work	20 80	
Paint and oil	436 26	
Soap	46 40	
Repairing elevator cable	182 25	
Rope	7 59	
	$57,614 68	

MAINTENANCE.

Paid for—

Labor	$23,075 37	
Carpets and furniture	2,849 91	
Lumber	986 18	
Glass and glazing	200 49	
Paint and oil	341 37	
Soap, brushes, brooms, etc.	378 97	
Janitors' supplies	337 68	
Locksmithing and hardware	323 75	
Railings	629 70	
Brick and cement	193 50	
Painting and calcimining	758 00	
Carried forward,	$87,689 60	$528,087 44

Brought forward,	$87,689 60	$528,087 44
Repairing elevators	1,917 59	
Maps	73 00	
Plastering	81 25	
Repairing roof	719 00	
Lettering doors	7 70	
Lime	6 40	
Clock	5 50	
Valves	59 08	
Iron pails	15 00	
Flag and decorating	145 28	
Sand	5 30	
Metal plates	26 00	
Toweling	121 82	
Paper baskets	12 00	
Grates	20 61	
Mouldings	5 00	
Ink stands	15 00	
Memorial safe	50 00	
Machinery	43 80	
Rope and waste	33 51	
Toilet paper	66 00	
Sawdust	18 00	
Plumbing	155 08	
Ice	156 80	
Repairing tools	20 75	
Felt	3 65	
Deodorizers	46 25	
Repairing ventilators	105 18	
Pipe and fittings	183 72	
Engine and boiler repairs	187 48	
		91,995 35
Carried forward,		$620,082 79

Brought forward,		$620,082 79
Acc't Ellis Park.		
Paid for—		
Labor	$640 00	
Seed	1 75	
Tools	98 27	
Lumber	18 43	
Plumbing	10 00	
		768 45
Acc't Douglas Monument Square.		
Paid for—		
Labor	$897 00	
Hose	15 25	
Tools	8 60	
Seed	5 25	
Sewer pipe	2 00	
Painting	23 60	
		951 70
Acc't Aldine Square.		
Paid for—		
Labor	$753 00	
Hose	30 25	
Tools	6 50	
Coal	93 75	
Plumbing	12 84	
Lamps	132 00	
		1,028 34
Acc't Lake Park.		
Paid for—		
Labor	$2,333 65	
Hardware	2 00	
Seed	4 00	
Carried forward,	$2,339 65	$622,831 28

Brought forward,	$2,339 65	$622,831 28
Tools and repairing,	19 75	
Oil	2 90	
Plumbing	106 32	
		2,468 62

Acc't Campbell Park.

Paid for—

Labor	$276 25	
Hardware	5 95	
Hose	4 90	
Plumbing	1 60	
Tools and repairing	7 50	
Repairing sidewalk	162 69	
		458 89

Acc't Bickerdike Square.

Paid for—

Trees		500 00

Acc't Shedds Park.

Paid for—

Labor	$124 00	
Hardware	9 83	
Flowers	58 75	
Water pipe	40 00	
Painting	7 50	
		240 08

Acc't Washington Square and others.

Paid for—

Labor	$1,641 62	
Seed	3 75	
Plumbing	8 15	
Painting	30 00	
Carried forward,	$1,683 52	$626,498 87

Brought forward,	$1,683 52	$626,498 87
Repairing tools....	6 91	
Fountain..........	15 10	
Fence	107 00	
Sprinkling........	210 00	
		2,022 53

Acc't Street Permits.

Paid for—

Labor............	$ 6,035 25	
Paving	12,732 59	
Books and stationery.............	50 50	
Rebates..........	33 25	
		18,851 59

Acc't House Moving Permits.

Paid for—

Salary of Superintendent........	$1,800 00	
Labor	277 00	
Books and printing	107 50	
		2,184 50

Acc't Street Lamps.

Paid for—

Labor............	$7,286 01	
Posts and lamps...	3,451 00	
Lamp fixtures.....	3,931 48	
Shop and barn rent	425 50	
Solder	227 84	
Glass.............	3,608 76	
Tin and copper....	480 42	
Paint and oil	332 26	
Street signs..... .	625 04	
Carried forward,	$20,368 31	$649,557 49

Brought forward,	$20,368 31	$649,557 49
Plumbing	15 89	
Tools and repairing	47 29	
Charcoal	40 00	
Ventilators	70 00	
Lumber	11 20	
One stove	22 00	
One horse	55 00	
Attending horse	6 50	
Teaming	158 40	
Horse feed	97 25	
Repairing wagon	11 25	
Repairing harness	21 55	
Horse-shoeing	144 55	
Books and stationery	30 70	
Water taxes	13 50	
Express charges	3 00	
Gas bills	39 40	
Advertising	32 82	
		21,188 61

Acc't Gasoline Lamps.

CONSTRUCTION.

Paid for—

Lamps and supplies	$3,094 35	
Tools and hardware	619 14	
Tin	1,172 32	
Labor	5,410 99	
Patterns	132 63	
Paint and oil	160 91	
Blow pipes	424 89	
Burners	3,542 50	
Lumber	92 73	
Castings	378 20	
Carried forward,	$15,028 66	$670,746 10

Brought forward,	$15,028 66	$670,746 10
Solder	44 03	
Wire	16 88	
Jacket cans	75 44	
Glass	389 40	
Fitting lamps and globes	399 10	
Conductor pipes	132 99	
Machinery	605 01	
Legal services	475 00	
Rope and tackle	9 25	
Use of horse and buggy	23 25	
Cartage and expressing	3 15	
Printing	6 50	
Window shades	5 59	
Traveling expenses.	24 00	
Sundries	26 89	
	$17,265 14	

OPERATING.

Paid for—

Labor	$ 9,105 26	
Gasoline	11,202 57	
Tools	52 75	
Hardware	95 17	
Printing	36 75	
Ladders	45 00	
Needle points	147 42	
Wire	4 76	
Coal	6 00	
Horse keep	54 00	
Soap	5 80	
Carried forward,	$38,020 62	$670,746 10

Brought forward,	$38,020 62	$670,746 10
Wicking	5 00	
Use of horse and buggy	23 25	
Acid	86	
Angles	9 00	
Tank taps	66 32	
		38,125 05

Acc't Special Assessments.

Paid for—

Legal expenses	$13,032 80	
Collecting special assessments	23,601 90	
Advertising	14,475 96	
Salaries and labor	37,401 49	
Expert testimony	6,880 00	
Making assessments	11,232 00	
Postage	1,167 65	
Car fare	468 94	
Maps and plats	55 00	
Books, printing and stationery	896 08	
Use of horse and buggy	16 00	
Hardware	5 40	
Filling hektograph	6 00	
Stenographing	495 40	
Telegrams	4 80	
City Directory	6 00	
Map rack	27 60	
Stools	10 25	
		109,783 27
Carried forward,		$818,654 42

Brought forward,		$818,654 42
Acc't Public Benefits.		
Paid for—		
City's portion of improved streets (intersections)......		373,095 22
Acc't Chicago Harbor.		
Paid for—		
Dredging	$59,188 31	
Harbor Masters' salaries and labor...	16,308 30	
Railroad and car fare.............	79 84	
Tug service.......	561 00	
Damages to vessels,	119 63	
Boat and oars	62 78	
Repairing boat	50 00	
Repairing instruments....	20 55	
Advertising.......	11 81	
Paint and oil	4 00	
Horse keep and shoeing........	28 00	
Pile driving	634 50	
Iron work.........	15 24	
Torches...........	16 00	
Wire	1 10	
Surveying vessels..	20 00	
Polish............	1 50	
Life-saving poles...	100 00	
Printing..........	10 00	
		77,232 56
Carried forward,		$1,268,982 20

Brought forward,		$1,268,982 20
Acc't Bridge Repairs.		
Paid for—		
Labor	$68,059 97	
Lumber	26,141 06	
Paint, oil and grease	3,171 80	
Coal	7,628 31	
Tools and hardware,	1,797 41	
Piles and pile-driving	9,509 96	
Bridge supplies	1,119 41	
Chain and rope	527 59	
Bridge belts	189 34	
Teaming	64 00	
Plastering	141 50	
Iron work	17,005 95	
Damages	428 42	
Gaskets and packing	274 55	
Sash and doors	152 52	
Bridge signs	75 00	
Stoves	63 27	
Tin work	118 11	
Lead	7 01	
Sewerage work	28 90	
Books and stationery	26 30	
Soap	3 17	
Plumbing	56 22	
Jackscrews	509 50	
Inspecting iron	528 00	
Lamps, globes and glass	104 49	
Cement and lime	1 90	
Salt	11 70	
Carried forward,	$137,745 36	$1,268,982 20

Brought forward,	$137,745 36	$1,268,982 20
Castings	58 95	
Moving bridge	50 00	
Horse-shoeing	74 80	
Pails and brooms	38 15	
Car fare	32 91	
Roofing	204 41	
Dredging	176 48	
Covering steam pipe	220 95	
Clocks	49 50	
Steam-fitting	38 77	
Sand	3 00	
Felting	65 00	
Tug service	137 00	
Attending horse	3 00	
Sundries	50 80	
		138,949 08

Acc't Viaduct Repairs.

Paid for—

Labor	$17,986 07	
Lumber	5,416 00	
Paint	397 45	
Iron work	3,300 77	
Sprinkling	90 00	
		27,190 29

Acc't Vessel Dispatcher.

Paid for—

Salaries and labor	$2,441 67	
Car fare	18 14	
Books and printing,	30 00	
Hardware	1 38	
Clock	2 50	
		2,493 69
Carried forward,		$1,437,615 26

Brought forward,		$1,437,615 26
Acc't Fullerton Avenue Conduit.		
Paid for—		
Coal	$11,061 28	
Salaries of engineers, oilers, firemen, etc	8,444 46	
Oil and grease	555 11	
Repairing engine	266 85	
Smoke consumer	225 00	
Inspecting machinery	35 00	
Grease cups	4 00	
Iron work	39 40	
Advertising	3 57	
Hose and packing	114 19	
Castings	49 47	
Repairing pumps	139 15	
Tools	8 55	
Steam-fitting	63 01	
Lanterns	6 75	
Gas bill	27 80	
Brooms and brushes	6 25	
Chairs and doormats	13 50	
Valves and fittings	36 64	
Sundries	7 16	
		21,107 14
Acc't Canal Pumping Works and Lock.		
Paid for—		
Salaries of engineers, firemen, oilers and labor	$27,050 18	
Coal	32,737 26	
Carried forward,	$59,787 44	$1,458,722 40

Brought forward,	$59,787 44	$1,458,722 40
Oil, paint and grease	1,102 03	
Repairing boilers..	2,381 22	
Repairing pumps ..	3,428 00	
Machine and iron work............	4,473 52	
Lumber.....	1,175 17	
Waste and packing	225 22	
Pipe and fittings...	134 34	
Inspecting machinery	217 50	
Tools and repairing	187 70	
Steam valves......	135 40	
Expansion joints...	143 00	
Water gates.......	14 30	
Castings..........	81 24	
Cement and lime...	52 95	
Sand......	35 00	
Brick.............	42 50	
Grate-bar castings.	102 73	
Rope and blocks...	77 53	
Advertising, printing and stationery	31 73	
Car fare...........	6 16	
Pails and brooms ..	5 94	
Hose and couplings	19 45	
Hardware	194 08	
Water cooler	8 90	
Fire brick and clay	169 25	
Lamps and globes .	39 13	
Sundries	33 59	
		74,305 02
Carried forward,		$1,533,027 42

Brought forward,		$1,533,027 42
Acc't Adams St. Bridge.		
Paid for—		
Substructure	$54,720 44	
Superstructure	68,758 25	
Iron work	1,861 14	
Labor	4,882 30	
Altering Pennsylvania Co. freight house	4,805 08	
Operating machinery	4,450 00	
Lumber	168 31	
Inspecting iron	624 94	
Advertising	64 89	
Drawing-material	53 28	
Printing specifications	24 50	
Oil tanks	12 00	
Tug service	64 50	
Stationery	2 76	
Car fare	1 50	
Plumbing	97 52	
Paving	374 26	
Lamp posts	150 00	
		141,115 67
Acc't Deering St. Bridge.		
Paid for—		
Substructure	$ 9,964 42	
Superstructure	17,080 00	
Advertising	17 78	
Drawing-material	6 67	
Printing specifications	15 00	
Carried forward,	$27,083 87	$1,674,143 09

Brought forward,	$27,083 87	$1,674,143 09
Blue prints	1 78	
Labor	303 50	
Teaming	65 78	
Lumber	112 26	
Iron work.........	281 78	
Inspecting iron....	165 00	
Plastering	35 00	
Building lock.. ...	527 03	
		28,576 00

Acc't Dearborn St. Bridge.

Paid for—

Labor	$2,110 43	
Substructure	7,254 58	
Superstructure	5,451 00	
Lumber	1,139 77	
Machine work.....	943 44	
Brushes	16 27	
Police and telephone house..........	217 50	
Paint and oil......	85 19	
Hardware.........	53 90	
Plumbing.........	162 93	
Iron work..... ...	658 24	
Pile driving.......	698 40	
Gaskets and packing	3 10	
		18,794 75

Acc't Webster Ave. Bridge.

Paid for—

Labor	$3,999 40	
Use of tug	128 00	
Use of scow.......	406 80	
Lumber	311 72	
Iron work....... .	97 06	
Carried forward,	$4,942 98	$1,721,513 84

Brought forward,	$4,942 98	$1,721,513 84
Advertising	10 66	
Moving bridge	45 00	
Blue prints	69	
Paint and oil	91 95	
Pile driving	190 30	
		5,281 58

Acc't Madison St. Bridge.

Paid for—

Engineering, draughting, etc.	$1,465 56	
Drawing-material	5 44	
Advertising	43 47	
Blue prints	29 71	
Printing specifications	51 00	
Land damages	10,290 00	
Iron work	10 78	
Operating machinery (on account)	3,700 00	
Inspecting iron	270 00	
		15,865 96

Acc't Washington St. Bridge.

Paid—

On account of substructure		3,570 00

Acc't Clark St. Foot-Bridge.

Paid for—

Labor	$1,348 01	
Iron work	100 00	
Pile driving	769 26	
Lumber	209 37	
Carried forward,	$2,426 64	$1,746,231 38

Brought forward,	$2,426 64	$1,746,231 38
Use of tug and scow	269 88	
Dredging..........	7 48	
Bell...............	3 00	
Chain..............	16 29	
Removing bridge.	126 40	
		2,849 69

Acc't Western Ave. (North) Bridge.

Paid for—		
Engineering and draughting......	$847 33	
Blue prints........	12 02	
		859 35

Acc't Taylor St. Bridge.

Paid for—		
Labor............	$657 45	
Tug service.......	518 80	
Moving bridge.....	30 00	
Iron work........	5 26	
Lumber...........	354 22	
		1,565 73

Acc't Clark St. Bridge.

Paid for—		
Engineering, drau't-ing and labor...	$3,142 57	
Inspecting iron....	543 58	
Pipe and fittings...	99 40	
Lumber...........	4 46	
Drawing material..	16 08	
Traveling expenses,	13 20	
		3,819 29
Carried forward,		$1,755,325 44

Brought forward,		$1,755,325 44

Acc't Eighteenth St. Bridge.

Paid for—		
Balance on sub-structure......		1,974 56

Acc't Ogden Ditch Dam.

Paid for—		
Labor..............	$1,359 24	
Board for laborers..	319 90	
Timbers and stone repairs..........	3,365 72	
Lumber...........	37 52	
Hauling clay......	668 80	
Telegrams and transportation...	22 42	
Bags............	16 25	
Sundries........	3 83	
		5,793 68

Acc't Dearborn St. Viaduct.

Paid for—		
Labor............	$ 787 50	
Balance on sub-structure.......	842 04	
Balance on super-structure.......	39,506 00	
Damages.........	2,000 00	
Inspecting iron....	387 15	
Cement and lime..	230 25	
Teaming........	42 00	
Coke.............	16 38	
Ventilating-traps..	40 00	
Railing for sidewalks	480 00	
Removing sidewalks	291 73	
Carried forward,	$44,623 05	$1,763,093 68

Brought forward,	$44,623 05	$1,763,093 68
Sash and frames	12 50	
Window guards	1 25	
Sidewalk and wall plates	320 09	
Brick	238 00	
Stone	243 92	
Two stone wheel-guards	13 50	
Sand	66 81	
Hardware	8 20	
Lumber	526 04	
Iron	533 00	
		46,586 36

Acc't Ashland Ave. Viaduct.

Paid for—		
Superstructure—(balance)	$14,144 92	
Labor	250 80	
Inspecting iron	400 50	
Paving	201 25	
Lumber	622 23	
Hardware	8 80	
Car fare	19 10	
		15,647 60

Acc't Western Ave. Viaduct.

Paid for—		
Superstructure —(balance)	$2,995 26	
Labor	256 12	
Paving	588 38	
Drawing material	3 39	
Carried forward,	$3,843 15	$1,825,327 64

Brought forward,	$3,843 15	$1,825,327 64
Hardware..........	4 35	
Lumber...........	169 11	
Inspecting iron....	159 92	
		4,176 53
Acc't Eighteenth St. Viaduct.		
Paid—		
Balance on superstructure........		4,329 00
Acc't Thirty-fifth St. Viaduct.		
Paid—		
Balance on substructure........	$31,369 19	
Balance on superstructure.......	13,857 00	
Labor.............	4,874 05	
Teaming..........	27 11	
Printing and advertising	14 79	
Drawing material..	9 16	
Inspecting iron....	513 84	
Plumbing..........	15 01	
Lumber...........	149 40	
		50,829 55
Acc't Wood St. Viaduct.		
Paid for—		
Engineering and draughting.....		528 75
Acc't Leavitt St. Viaduct.		
Paid for—		
Engineering and draughting......		113 75
Carried forward,		$1,885,305 22

Brought forward,		$1,885,305 22

Acc't Twelfth St. Viaduct Extension.

Paid for—		
Labor	$1,872 00	
Inspecting iron	108 00	
Blue prints	1 32	
		1,981 32

Acc't Electric Light Plant.

Paid for—		
Labor	$9,401 10	
Coal	2,193 37	
Machine work	963 49	
Oil and grease	353 75	
Iron work	351 39	
Carbons	210 50	
Three filters	450 00	
Exhaust and drip-pipes	684 00	
Galvanized iron work	248 31	
Boiler dome	240 33	
Drip-pans and fenders	114 74	
Cable	1,913 68	
Castings	288 62	
Lumber	561 19	
Belting	868 18	
Hardware	35 95	
Friction clutch	60 00	
Separator	171 00	
Covering steam pipe	39 15	
Pulley shaft	460 11	
Lightning-rod	39 70	
Carried forward,	$19,648 56	$1,887,286 54

Brought forward,	$19,648 56	$1,887,286 54
Inspecting machinery	30 00	
Freight	33 56	
Fire-brick and clay,	253 44	
Grate-bars	25 95	
Brick	135 00	
Pipe and fittings	176 77	
Electric light supplies	73 70	
Mining machinery	103 82	
Repairing roof	33 20	
Painting and glazing	66 05	
Block and pulley	15 00	
Floor-plates	43 58	
Rubber goods	17 27	
Sand	49 15	
Cement and lime	61 90	
Removing earth	16 25	
Crank pin boxes	78 00	
Teaming	20 60	
Brushes	5 56	
Printing and advertising	33 41	
Car fare	24 83	
Gas	6 80	
Gas-fitting and plumbing	387 64	
Stone and screenings	52 95	
		21,392 99
Acc't Permit Depositors.		
Paid—		
Rebates on deposits for street permits,		6,937 35
Carried forward,		$1,915,616 88

Brought forward,		$1,915,616 88
Acc't Salaries.		
Paid—		
Employes of Street Department	$38,573 25	
Employes of City Engineer's Department	6,477 48	
Employes of Map Department	11,344 95	
Employes of Purchasing Agent's Office	1,419 33	
One-third salaries of Commissioner, Secretary, Book-keeper, and others	5,433 33	
Bridge-tenders	69,565 30	
		132,813 64
Acc't Proportional Office Expenses.		
Paid for—		
Books, printing and stationery	$675 82	
Binding books and papers	56 40	
Annual report (on account)	755 81	
Newspapers	19 25	
Car fare	33 67	
Postage	101 00	
Horse keep and shoeing	11 25	
Freight	4 70	
Lettering reports	1 80	
		1,659 70
Carried forward,		$2,050,090 22

Brought forward,		$2,050,090 22

Acc't Street Department Office Expense.

Paid for—

Books, printing and stationery	$195 25	
Postage	159 65	
Car fare	534 32	
Cab hire	4 00	
Clerical service	62 50	
Letter press	20 50	
One star	1 50	
One city directory	6 00	
Repairing vault door	1 00	
Sundries	3 62	
		988 34

Acc't City Engineer's Office Expenses.

Paid for—

Books, printing and stationery	$130 06	
Car fare	121 55	
Postage	20 50	
Drawing-material	25 68	
Auto-copyist	55 90	
Hardware	11 85	
Tools and instruments	18 65	
One city directory	6 00	
Repairing buggy	27 55	
Lap robe	4 50	
Freight	2 70	
Carried forward,	$424 94	$2,051,078 56

Brought forward,	$424 94	$2,051,078 56
Traveling expenses	16 80	
Brushes	54	
Labor	19 81	
Boarding and shoeing horse	39 75	
		501 84

Acc't Map Office Expenses.

Paid for—

Drawing-material	$294 07	
Binding atlas	13 50	
Postage	4 30	
Map of Chicago	15 00	
One city directory	6 00	
One clock	5 00	
		337 87

Miscellaneous Accounts.

Amount paid for hardware for West Division pound		32 30
Amount transferred to surplus account		6,909 22
Amount of uncollected taxes for 1888		15,645 12
Amount paid for damages to No. 15 Dix street, on account of Chicago avenue viaduct		100 00
Total expenditure		$2,074,604 91

CITY HALL FUND.

RECEIPTS.

Amount appropriated by City Council	$4,740 25	
Total receipts		$4,740 25

EXPENDITURES.

Paid for—		
Steam-fitting in rotunda	$ 80 99	
Marble and tile work in rotunda	239 30	
Carpenter work	632 00	
Uncollected taxes for 1888	217 43	
Total expenditures,		$1,169 72

TRIAL BALANCE.

LEDGER, DEPARTMENT OF PUBLIC WORKS, CHICAGO,

DECEMBER 31, 1889.

	Dr.	*Cr.*
Water Fund		$ 72,524 61
Water Works	$ 13,772,562 25	
Water Works, income		23,083,352 17
Water Fund, general taxes		2,713,878 53
Water-loan bonds, 6 per cent		132,000 00
Water-loan bonds, 7 per cent		3,115,000 00
Water-loan bonds, 4 per cent		150,000 00
Water-loan bonds, $3\frac{65}{100}$ per cent		333,000 00
Water-loan bonds, $3\frac{1}{2}$ per cent		225,000 00
Water-loan bonds canceled		859,000 00
Water Fund investment	875,280 00	
Water-loan interest	6,716,578 81	
Water Works expense and repairs	9,122,147 11	
American Exchange National Bank, New York.	119,786 97	
J. W. Lyons, Cashier.	1,691 88	
Meter Department stock .	10,000 96	
Water Works shop stock.	3,697 21	
Tapping Department stock	5,164 53	
Water pipe and special castings	90,000 00	
Carried forward,	$30,716,909 72	$30,683,755 31

Brought forward,	$30,716,909 72	$30,683,755 31
Sewer pipe	228 50	
Lead	2,100 00	
Water Works shop		134 66
Water Works stable	98 24	
Ogden, Sheldon & Co		638 93
Barrett, Todd & Cochran		250 00
John Tyrrell		150 00
West Chicago Park Commissioners		1,130 57
S. H. Wheeler		250 32
C. J. L. Meyer		200 00
William D. Kerfoot & Co		5,274 37
Julia F. Porter		185 90
Adele F. Adams		638 10
Clara F. Bass		1,195 80
Board of Education		800 00
J. Q. Adams		124 69
Conrad Seipp		431 00
E. A. Cummings & Co		4,442 46
Little Sisters of the Poor		500 00
J. U. Borden		1,179 28
C. & G. W. Ry. Co		882 00
W. F. Myrick		725 51
Lamson Bros		682 83
Estate of C. H. McCormick		60 00
S. E. Gross		2,146 85
J. Stiles		1,240 00
J. K. Cochran		646 42
C. & N.-W. Ry. Co		131 36
Barber Asphalt Paving Co.		200 00
Geo. A. Seaverns		4,400 45
L. B. Otis		499 17
Augustus Jacobson		779 17
Wm. Jones		293 47
Carried forward,	$30,719,336 46	$30,713,968 62

Brought forward,	$30,719,336 46	$30,713,968 62
B. F. Weber		1,123 01
Josiah L. Lombard		966 00
J. L. Cochran		1,318 83
Knott & Lewis		700 00
Hydrant wrenches		1,260 00
Sewerage Fund	18,472 70	
Sewerage surplus account.		5,500 00
Sewers, North Division	1,270,292 79	
Sewers, South Division	1,960,077 50	
Sewers, West Division	4,294,356 27	
Sewer pipe	2,076 30	
Sewer brick	14 83	
Wooden covers	4,490 56	
Iron covers	1,695 00	
Cement	123 00	
Sand	1 50	
Sewerage—private work		500 00
Sewerage-loan bonds, 7 per cent		1,288,000 00
Sewerage-loan bonds, 4 per cent		845,000 00
Sewerage-loan bonds, 4½ per cent		489,500 00
Sewerage-loan bonds, canceled		377,500 00
Sewerage Fund, general taxes		4,703,115 28
General Fund	382 55	
Suspense account	111,548 77	
Galena & Chicago Union R. R. Co		382 55
Jas. Fitz Simons		150 00
Thos. J. Divan		150 00
Chicago Malleable Iron Co.		900 00
Carried forward,	$38,382,868 23	$38,430,034 29

Brought forward,	$38,382,868 23	$38,430,034 29
Board of Education		4,677 50
Geo. A. Seaverns........		75 00
Presbyterian Theological Seminary.............		1,397 50
Vopicka & Kubin		213 00
Chicago Gas Light & Coke Co..................		330 00
L. C. Ward		285 00
S. W. Roth..		500 00
T. W. Eaton............		80 00
John Tyrrell............		500 00
R. Schlosser............		331 00
Sidney A. Kent.........		860 00
Cook County Building and Loan Association......		600 00
Hardien, Hoffland & Carson...................		592 00
John N. Young..........		1,840 00
Anthony J. Drexel.......		1,348 00
J. L. Cochran...........		2,300 00
Oscar Charles............		1,360 00
Rev. M. W. Barth.......		300 00
Daniel T. Bacon.........		418 00
W. S. & C. E. Adams. ...		70 00
W. J. Clisbie......... ...		35 00
Eben Ryder.........		105 00
W. H. Colvin............		300 00
Graceland Cemetery Co..		924 00
W. C. Van Schaack & Co.		853 00
Maurice J. Healy.........		607 70
Sewerage maintenance...	62,567 76	
Sewerage stock..........	5,500 00	
City Hall Fund..........	3,570 53	
City Hall appropriation...		1,708,990 28
Carried forward,	$38,454,506 52	$40,159,926 27

Brought forward,	$38,454,506 52	$40,159,926 27
Board of Education.......		10,970 24
New City Hall...........	1,716,389 99	
Appropriation Fund.......	299,350 00	
Improved streets.........	27,327 07	
Thomas Byrne...........		200 00
Public benefits...........		5,440 70
Special assessments......	175 54	
Chicago harbor..........		15,153 45
May and Kinzie street viaduct..................		8,000 00
Twelfth street viaduct....		665 50
Permit depositors........		11,025 80
Street Department stock.	5,982 32	
Deficiency in collection of taxes.................	2,793 24	
Surplus account..........		7,985 34
Taylor street bridge......		18,434 27
Canal street bridge.......		6,000 00
Webster avenue bridge...		13,018 42
Western avenue (north) bridge................		9,140 65
Madison street bridge ...		184,134 04
Washington street bridge.		46,430 00
Morgue.................		10,000 00
	$40,506,524 68	$40,506,524 68

STATEMENT OF RECEIPTS AND EXPENDITURES, BY THE DEPARTMENT OF PUBLIC WORKS, FROM JULY 15 TO DECEMBER 31, 1889, ON ACCOUNT OF—

HYDE PARK FUND.

RECEIPTS.

Acc't Hyde Park Water Department.			
From current water rents (assessed)..	$ 29,190 71		
From current water rents (meters)...	26,519 35		
From tapping permits............	2,060 50		
From labor and material...........	97 50		
		$57,868 06	
Acc't Hyde Park Sewer Department.			
From drain permits,		1,760 50	
Acc't Hyde Park Public Works Department.			
From house-moving permits....... ..	$ 148 00		
From street permits	54 00		
From engineering and inspection...	922 62		
		1,124 62	
Total receipts... .			$60,753 18

EXPENDITURES.

Acc't Hyde Park Water Department.

Paid for—		
Brick and stone....	$ 964	65
Masonry on building.............	8,259	00
Carpenter work....	2,490	00
Galvanized iron work............	2,290	00
Stone work..	480	00
Lumber...........	201	45
Plastering.........	145	00
Labor......	46,920	01
Water-pipe and castings.........	15,922	07
Valves and hydrants	16,311	04
Lead.............	2,812	83
Corporation cocks..	1,666	00
Teaming........	1,112	98
Tools and repairing,	821	14
Freight......... .	300	50
Electric light plant and supplies.....	1,032	20
Hose and couplings,	173	98
Rubber goods......	21	88
Rope and hardware,	88	04
Plumbing..........	427	65
Machine work....	146	20
Steam-pipe and fittings............	2,745	08
Oil and grease. ...	683	22
Waste and packing.	343	65
Water gate........	39	71
Carried forward,	$106,398	28

Brought forward,	$106,398 28	
Meter....	52 00	
Rent of pipe yard..	150 00	
Skylight	414 13	
Diving............	40 00	
Coal.	7,779 72	
Architect's services	352 90	
Earth filling..	82 75	
Belting	59 83	
Glassware.........	16 20	
Grates and grate bars	45 53	
Air pump.........	12 90	
Washers	42 35	
Livery............	20 00	
Lamps............	20 00	
Rebate..	5 00	
Boiler compound...	31 80	
Cement...........	393 75	
Wire work	30 50	
Repairing office....	52 03	
Repairing scales...	63 67	
Maps	36 50	
Pumping engine (on account)	19,666 66	
Salt..........	9 50	
Ice	34 70	
Books, printing and stationery.......	323 47	
Railroad and car fare and postage	200 41	
Sand.............	30 50	
Meals.........	13 60	
		$136,378 68
Carried forward,		$136,378 68

Brought forward,		$136,378 68

Acc't Hyde Park Sewer Department.

Paid for—

Labor	$ 10,348 10	
Catch-basins	100 00	
Sewer brick	94 50	
Sewer pipe	362 87	
Cement	248 28	
Lumber	184 33	
Manhole covers	107 98	
Plumbing	6 50	
Tools	72 12	
Rope	21 60	
Hardware	9 15	
Advertising	16 83	
Constructing and relaying sewers	5,425 13	
Paving	143 80	
Freight	49 89	
Maps and atlas	468 16	
Car fare, postage and stationery	149 68	
		17,808 92

Acc't Hyde Park Public Works Department.

Paid for—

Labor	$ 54,428 83	
Tools and hardware	347 62	
Teaming and horse-keep	365 91	
Lumber	3,877 65	
Stone and macadam	2,557 35	
Cinders and ashes	614 90	
Coal	478 93	
Carried forward,	$62,671 19	$154,187 60

Brought forward,	$62,671 19	$154,187 60	
Glass for street lamps	178 75		
Oil	31 96		
Rent of yard	50 00		
Bridge repairs	453 46		
Chain	34 51		
Rebates	322 85		
Sundries	179 06		
Stationery and drawing material.	115 40		
Railroad and car fare	267 53		
Repairing instruments	7 25		
Blacksmithing	53 75		
Maps	264 18		
Survey	30 00		
Calcimining	75 00		
Brass railing	25 00		
Storm-house	14 00		
Rubber goods	42 00		
Paving	26 75		
Driving piles	2,171 90		
Gas	12 00		
Ice	29 35		
		67,055 89	
Acc't Hyde Park Special Assessment Department.			
Paid for—			
Clerk hire	$ 2,408 66		
Advertising	577 28		
Making assessments	108 00		
Legal expenses	464 50		
Expert services	200 00		
Office expenses	111 42		
		3,869 86	
Total expenditures,			$225,113 35

TOWN OF LAKE FUND.

RECEIPTS.

Acc't Town of Lake Water Department.			
From current water rents (assessed)	$ 47,394 30		
From current water rents (meters)	26,265 34		
From tapping permits	3,275 40		
From labor and material	542 88		
		$ 77,477 92	
Acc't Town of Lake Sewer Department.			
From drain permits,		1,267 00	
Acc't Town of Lake Public Works Department.			
From house-moving permits	$ 192 50		
From labor	79 50		
		272 00	
Total receipts			$79,016 92

EXPENDITURES.

Acc't Town of Lake Water Department.	
Paid for—	
Labor	$ 34,683 97
Teaming and horse-keep	1,097 40
Carried forward,	$35,781 37

Brought forward,	$35,781 37	
Castings	1,043 03	
Coal	7,480 62	
Meters	1,260 35	
Waste and packing,	63 72	
Tapping machine	135 00	
Corporation cocks	972 50	
Oil and grease	141 35	
Boiler compound	64 80	
One horse	165 00	
Plumbing	13 10	
Lead	259 21	
Brick	128 00	
Lumber	100 72	
Steam-fitting	156 72	
Valves	340 10	
Machine and iron work	171 20	
Maps	218 50	
Moving tool-house	25 00	
Hardware	15 89	
Rent of store-room,	28 00	
Transfer voucher	225 00	
Cash for change—Water Office	50 00	
Cement	45 00	
Advertising	39 40	
Ice	63 60	
Tools	30 20	
Cleaning offices	36 00	
Books, printing and stationery	418 60	
Stove and pipes	17 80	
Postage and freight.	11 93	
		$49,501 71
Carried forward,		$49,501 71

Brought forward,		$49,501 71
Acc't Town of Lake Sewer Department.		
Paid for—		
Labor	$20,925 61	
Sewer pipe	1,233 27	
Man-hole covers	273 00	
Brick	241 00	
Castings	45 64	
Sand	10 00	
Cement	149 00	
Iron covers	100 00	
Lumber	59 50	
Hardware	54 51	
Rubber goods	51 80	
Plumbing	20 00	
Building pump	40 00	
Maps	275 00	
Use of horse, etc	65 00	
Tools and repairs	69 28	
Stove and pipe	9 00	
Gas bill	17 10	
Postage and car fare	15 54	
Printing and stationery	43 35	
		23,697 60
Acc't Town of Lake Public Works Department.		
Paid for—		
Labor	$70,073 83	
Lumber	8,718 83	
Crushed stone, slag, etc	3,130 30	
Hardware	695 23	
Teaming	656 25	
Carried forward,	$83,274 44	$73,199 31

Brought forward,	$83,274 44	$73,199 31	
Flooding streets	67 50		
Ashland avenue bridge	11,438 81		
Gravel	51 90		
Steam-fitting	498 81		
Sprinkling	127 00		
Sidewalk	38 94		
Ice	15 45		
Tools and repairing,	97 00		
Lead	84 65		
Derrick	50 00		
Maps	284 16		
Cleaning offices	8 00		
Postage and car fare	25 55		
Stationery	25 36		
Gas	17 10		
Coal	52 50		
		96,157 17	

Acc't Town of Lake Special Assessment Department.

Paid for—			
Clerk hire	$ 2,826 24		
Advertising	82 07		
Legal expenses	282 00		
Office expenses	11 55		
		3,201 86	
Total expenditures,			$172,558 34

LAKE VIEW FUND.

RECEIPTS.

Acc't Lake View Water Department.			
From current water rents (assessed)..	$ 35,751 42		
From current water rents (meters)...	3,436 79		
From tapping permits............	1,362 20		
From iron boxes sold............	427 50		
From labor and material...........	336 05		
		$ 41,313 96	
Acc't Lake View Sewer Department.			
From drain permits,	$ 3,222 50		
From contract forfeited...........	200 00		
From labor and material...........	16 12		
		3,438 62	
Acc't Lake View Public Works Department.			
From house-moving permits.........	$ 44 00		
From inspection and labor............	360 05		
		404 05	
Total receipts.....			$ 45,156 63

EXPENDITURES.

Acc't Lake View Water Department.

Paid for—		
Salaries and labor..	$ 21,593 00	
Tapping machine, stop-cocks and boxes..........	4,119 03	
Coal..............	5,647 56	
Oil and grease.....	409 85	
Tunnel (on account)	31,580 07	
Boilers............	3,200 00	
Pumping engine....	26,500 00	
Waste and packing.	90 15	
Machine work.....	610 07	
Castings..........	412 43	
Hardware........	76 47	
Teaming..........	223 50	
Ventilator........	93 00	
One horse.......	160 00	
Use of tug.........	15 00	
Diving.......... ..	50 00	
Rope.............	36 69	
Tools.............	32 55	
Glass.............	4 30	
Leather...........	8 31	
Stable supplies and horse feed.......	147 77	
Books, printing and stationery.......	107 03	
Stove and pipe.....	22 66	
Car fare...........	192 10	
Sundries..........	15 18	
		$95,346 72
Carried forward,		$95,346 72

Brought forward,		$95,346 72
Acc't Lake View Sewer Department.		
Paid for—		
Labor	$ 3,986 17	
Sewer pipe	1,114 57	
Sewer brick	90 00	
Teaming	36 00	
Sewer construction,	312 80	
Repairing sewer outlet	220 00	
Repairing tools	11 85	
Ash-pails	12 55	
Drawing-material	13 79	
Advertising	5 76	
Sundries	15 19	
		5,818 68
Acc't Lake View Public Works Department.		
Paid for—		
Labor	$ 13,855 01	
Lumber	223 76	
Brick	270 00	
Hardware	34 20	
Sewer-pipe	324 38	
Ground-rent	150 00	
Coal	72 09	
Lighting lamps	183 10	
Repairing lamps	80 73	
Gravel	28 00	
Granite	30 00	
Glass and lamp supplies	187 90	
Oil	289 97	
Carried forward,	$15,729 14	$101,165 40

Brought forward,	$15,729 14	$101,165 40	
Street signs.......	129 20		
Cement...........	32 03		
Draining streets.	199 36		
Plumbing..........	8 54		
Maps.............	14 16		
Matches...........	8 80		
Permits refunded...	25 00		
Car fare...........	13 55		
Tools.............	6 00		
Iron work..	7 23		
Binding documents.	11 25		
Lake View directory	3 00		
Sundries..........	15 18		
		16,202 44	

Acc't Lake View Special Assessment Department.

Paid for—

Clerk hire and labor,	$ 3,025 50		
Advertising........	235 01		
Sewer brick......	90 00		
Legal expenses....	435 25		
Teaming..........	12 50		
Plumbing.........	8 50		
Office expenses....	41 00		
		3,847 76	
Total expenditures,			$ 121,215 60

JEFFERSON FUND.

RECEIPTS.

Acc't Jefferson Water Department.		
From water rents and tapping permits	$ 13 15	
Acc't Jefferson Public Works Department.		
From house-moving permit	1 00	
Total receipts		$ 14 15

EXPENDITURES.

Acc't Jefferson Water Department.		
Paid for—		
Laying water-pipe	$ 374 00	
Books, printing and stationery	33 75	
		$407 75
Acc't Jefferson Sewer Department.		
Paid for—		
Sewer-pipe	$803 50	
Freight	50 50	
		854 00
Carried forward,		$1,261 75

Brought forward,		$1,261 75	
Acc't Jefferson Public Works Department.			
Paid for—			
Labor	$ 7,605 32		
Gravel	3,631 75		
Cinders	325 00		
Hardware	123 70		
Improving streets	12,465 13		
Lumber	1,080 49		
Aprons and crossings	769 13		
Cement	25 00		
Sewer-pipe	50 10		
Fountain	59 00		
Books and printing,	2 50		
Tool-house	56 00		
Freight	2 54		
Sundries	7 18		
		26,202 84	
Total expenditures,			$ 27,464 59

CICERO FUND.

RECEIPTS.

Acc't Cicero Water Department.		
From water rents and tapping permits	$ 36 97	
Acc't Cicero Public Works Department.		
From sale of iron fence	25 00	
Total receipts		$ 61 97

EXPENDITURES.

Paid for—			
Atlas..............	$ 30 00		
Books, printing and stationery.......	34 10		
		$64 10	
Total expenditures,			$ 64 10

Respectfully submitted,

F. C. MEYER,

Book-keeper, Department of Public Works.

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